1. Candidate

Marius LEORDEANU

PhD in Robotics/Computer Science
Carnegie Mellon University, December 2009

Academic Positions

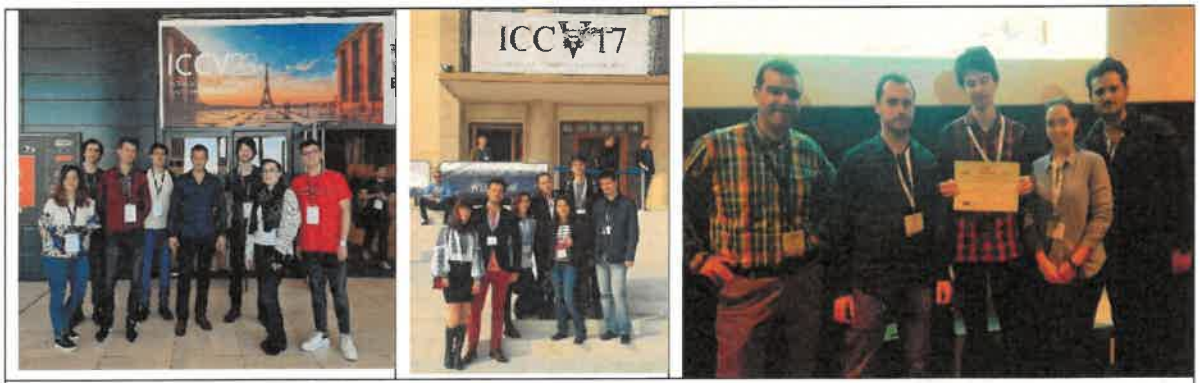
Full Professor of Computer Science, University Politehnica of Bucharest
Research Scientist, Institute of Mathematics of the Romanian Academy
Research Scientist, Norway Research Center (NORCE), Norway

Contact

Phone:
Email

2. Romanian Research Gala: 2024 Edition
3. Category: Mathematics and Computer Science
4. Competition: Team Leader

5. Leader of the following Research Team



Our team at the International Conference on Computer Vision (ICCV) in 2023 (left), where we presented five papers, and 2017 (middle), where we presented 3 papers and also won a Best Paper Award for our work on Vision for Unmanned Aerial Vehicles (right).

Alina MARCU
Master of Computer Science, University Politehnica of Bucharest, 2016
Current position: PhD student in Computer Science, IMAR. Coordinator: Marius Leordeanu

Dragos COSTEA
Master of Computer Science, University Politehnica of Bucharest, 2015
Current position: PhD student, UPB and UPB. Coord: M. Leordeanu and Emil Slusanschi

Mihai PIRVU,
Master of Computer Science, University Politehnica of Bucharest, 2018
Current position: PhD student in Computer Science, IMAR. Coordinator: Marius Leordeanu

Mihai MASALA
Master of Computer Science, University Politehnica of Bucharest, 2019
Current position: PhD student in Computer Science, IMAR. Coordinator: Marius Leordeanu

Florin CONDREA
Master of Computer Science, University of Bucharest, 2020
Current position: PhD student in Computer Science, IMAR. Coordinator: Marius Leordeanu

Nicolae CUDLENCO
Master of Computer Science, University Politehnica of Bucharest, 2016
Current position: PhD student in Computer Science, IMAR. Coordinator: Marius Leordeanu

Vlad LICARET
Electrical Engineer Diploma, University Politehnica of Bucharest (2010)
Current position: Machine Learning Engineer. UPB and NORCE. Coord: M. Leordeanu

Cristina LAZAR
Bachelor of Arts, National University of Arts, 2019. Coord: Petru Lucaci and Marius Leordeanu
Current position: Master student, UNArte. Coord: Petru Lucaci and Marius Leordeanu

Ioana CROITORU
PhD in Computer Science, IMAR, 2022. Coordinator: Marius Leordeanu
Current positions: Teaching Assistant UPB and Research Engineer, V7 Labs, London, UK.

Vlad BOGOLIN
PhD in Computer Science, IMAR, 2022. Coordinator: Marius Leordeanu
Current positions: Senior Engineer at MariaDB Foundation; Co-Founder and CEO at Filtir

Elena BURCEANU
PhD in Computer Science, IMAR, 2022. Coord: Marius Leordeanu and Gheorghe Stefanescu
Current position: AI Scientist and Head of Machine Learning, Bitdefender

Emanuela HALLER
PhD in Computer Science, IMAR, 2022, Coord: Marius Leordeanu and Adina Florea
Current position: Senior Applied Scientist, UiPath

Oana MITRUT (Balan)
PhD in Computer Science, UPB, 2018.
Postdoc at University Politehnica of Bucharest. Coordinator: Marius Leordeanu
Current position: Associate Professor, University Politehnica of Bucharest

Emil SLUSANSCHI
PhD in Computer Science
Current position: Full Professor and Head of Computer Science Department, UPB
Member of International Research Projects (Spacetime Vision and ELIAS) lead by M. Leordeanu

Bogdan ALEXE
PhD in Computer Science, ETH, 2013.
Current Position: Professor of Computer Science, University of Bucharest
Member of several projects coordinated by Marius Leordeanu

Section 6. Main Achievements by the Team Leader (during the last five years)

6.1 SCIENTIFIC CONTRIBUTIONS

Work on unsupervised learning: during the last five years my work on unsupervised learning, which started 20 years ago, with my very first paper (CVPR 2005) as a PhD student at Carnegie Mellon University, reached a unified form, with all the results obtained along the way fitting together, into one solid piece. Unsupervised learning in space and time is one missing key in solving the puzzle of intelligence. While my theory on this topic is not completely finalized, now it has a full and clear form, with well-defined next steps that need to be taken, naturally developing from my recent papers published in top international venues (TPAMI 2022, AAAI 2021, BMVC 2021, and four papers at ICCVW 2023). They are building upon my long-term work, as seen in a relatively long array of published results as first or principal author (CVPR 2005, ECCV 2006, CVPR 2007, CVPR 2009, IJCV 2012, ICCV 2011, AAAI 2016, ICCV 2017, IJCV 2019).

These results create together a complex edifice in which each paper plays its part, as a brick in the larger structure. In order to best explain how they all connect together and also to lay down the necessary steps that need to be taken next, I wrote a book on the topic, titled "Unsupervised Learning in Space and Time" (Springer 2020), which quickly became a best-seller. According to Bookauthority.org, it is the best-selling book in the world on Unsupervised Learning since 2020, and 15th on the all-time list, next to some well-known classics on the topic in the AI field.

Work on connecting graphs and neural networks: My fascination with graphs and their relation to intelligence started very early in life and my publications also reflect that. My initial research on learning and matching patterns with graphs offered a solid foundation for graph matching in today's computer vision, with my first paper on the topic (ICCV 2005) gathering about 1500 citations and becoming among the Top 5 Most Influential Papers from that edition ICCV 2005 (source: https://www.paperdigest.org/2023/04/most-influential-iccv-papers-2023-04/), one of the top three conferences on computer vision in the world. That first paper was also used and cited by more than 42 Patents (according to freepatentsonline.com). The publications that followed create a theory on learning with

graphs that includes spectral graph and hypergraph matching and optimization, graph and hypergraph clustering, inference and learning in probabilistic graphical models, supervised, semi-supervised and unsupervised learning for graphs and hypergraphs, together with efficient discretization procedures, which culminated in 2014 with the "Grigore Moisil" Prize offered (with me as single recipient) by the Romanian Academy.

I mention this work before 2019, because it lays the foundation for my work today on cracking the unsupervised learning problem in a more general sense. For that I need to relate graph representations and optimization algorithms with deep learning. More specifically, the consensus on large hypergraphs of neural networks, which connect many ways of interpreting the world, produces automatic supervisory signal for learning, in the absence of ground truth. My recent publications in top conferences and journals (NeurIPS, TPAMI, AAAI, IJCAI, ICCV, BMVC) in the last 5 years, all develop upon the idea of unsupervised learning in space and time by consensus using graphs and deep neural networks.

Work on Vision for Intelligent Drones: my work on learning drones how to fly and understand the world from above, which started at ICCV 2017 with a Best Paper Award, continued during the last five years with significant progress in the direction of unsupervised multi-task learning (AAAI 2021, BMVC 2021, ICRA 2022, CVPR 2021, ICCV 2023). We have already created probably the first self-flying low-cost drone in Romania, using vision alone (without any GPS information), ideal for indoor and other difficult environmets.

Research on AI in multi-disciplinary contexts: Since intelligence is about connecting in consensual and creative ways different modes of seeing and understanding the world, it is crucial, today more than ever before, to consider AI in the larger context of the human experiences and mind. Thus, in the last 5 years I was actively involved in creating AI systems for the wood industry (three US published patents, one European Project won and a very well sold AI application in the US), AI for medicine (collaboration with Siemens) as well as AI for Visual Art. In an original collaboration with visual artists from University of Arts (Bucharest) we created several Art-AI systems (one example: https://sites.google.com/view/smile-Project) that were presented at several national and international exhibitions (see my CV).

6.2 STRENGTHEN THE BRIDGE BETWEEN ROMANIA AND THE WORLD

Putting Romania on the European Map in Artificial Intelligence: A large part of my effort went into fostering collaborations with prestigious research laboratories, institutions and universities from Europe and beyond. Along this direction we won together with other 32 Partners from 17 European Countries a large-scale project to build the European Lighthouse of AI for Sustainability. This network of excellence connects AI in academia and industry, from all parts of Europe and human levels (individual, societal and planetary). This unique project offers a great opportunity for Romania to join the elite of the European AI ELLIS family. One of my goals, as PI of the UPB Partner is to create a Romanian ELLIS Unit, together with the top research groups and universities in Romania – for which I have the full support from the coordinators of ELLIS, especially in the context of starting the first Romanian AI Hub.

Creating the first Romanian HUB in Artificial Intelligence: In December 2019, I was invited by the Minister of European Funds together with a top team of professors and researchers that I formed (Alina Badescu, Bogdan Alexe, Radu Ionescu, Elena Ovreiu, Traian Rebedea, Costin Raiciu, and others), to discuss long-term plans for developing the field of AI in Romania. More information about the meeting can be found on the government website. It was that meeting that marked the very beginning of our long-term collaboration with the Romanian Government for the development of the first Romanian AI HuB. During the beginning of 2020, I had many meetings in person with the Minister of European Funds and other top level representatives, in which we started putting the basis of HRIA. Helped by a handful of colleagues from academia and industry, we wrote the first draft of this multi-million project (with an initial buget of 100 Million Euros). Today, after four years, I could confidently say that the Romanian AI Hub is finally ready to start, having 7 Universities and 7 SME Companies partners, with all documentation ready, while having the full support of the Romanian Government and a final approved budget of over 67 Million. My role and effort all this time, to help the wonderful partners and professors involved, to form the consortium, formulate the research directions and specific tasks has finally paid off. However, I feel I am just at the beginning and I cannot wait to do more, with all my heart and passion, for the future of science in Romania.

Contributing to collaborations between Romania and EEA countries: in 2019 I won as PI, a 1.5 Million EEA-Norway Grant with focus on doing research on Unsupervised Learning in Space and Time. The project resulted in many of our recent results and papers and also created a

strong collaboration between our group at UPB and NORCE, one of the largest research organizations in Norway. The collaboration resulted in joint scientific papers (two papers ICCV 2023), organization of top level events (we co-organized the Embedding Vision Workshop at CVPR and ECCV, with the next edition following at CVPR 2024 and a Machine Learning and Vision Autumn School in Norway). Our clear plan is to continue developing our collaboration, by putting together our strong experience and knowledge in AI here in Romania with the excellent use-cases and technical resources from NORCE. Several of my group members are currently involved in industrial R&D projects with NORCE on AI for fish farming and 3D scene monitoring and understanding.

6.3. EDUCATE THE YOUNG GENERATION AND BUILDING THE AI COMMUNITY IN ROMANIA

In the last 5 years, I put all my knowledge and passion for research, as professor and educator, in the service of the society, especially by guiding the young generation and helping them develop their potential to the maximum. In 2015, I introduced, for the first time at UPB, the Computer Vision and Robotics courses (in English) as part of our AI Masters Program – which quickly became a strong point of attraction for top students to stay and study in Romania. Our program in AI quickly grew from less than 20 students per year to over 60 students today. My PhD students of today were first my Masters students at UPB. In fact, most of my former students are now creating the AI industry in Romania at top companies. In order to keep the door open towards knowledge and science at the top international level, I also established the Bucharest Computer Vision reading group in which we discuss and present the latest papers in the fields of AI, vision, natural language processing and machine learning. This reading group is most probably the first such group in Romania, which is also publicly open to anyone who is interested.

As part of my contribution to raise the education level with respect to AI and science in Romania, I constantly participated in TV and Radio shows on this subject, with notable appearances at TVR, Radio Romania Actualitati, Radio Romania Cultural and Digi TV. I always tried to stay focused on the greater good of Romania, with a clear objective in mind, which is that of working together with others, united in our common goal to help Romania fulfill its amazing potential and reach its wonderful future.

Section 7: Curriculum Vitae of the Team Leader and Individual Team Members

Marius LEORDEANU

Total Citations (Google Scholar): **8018, H-index: 36.**
DBLP Profile: https://dblp.org/pid/21/5985.html
Website: https://sites.google.com/site/mariusleordeanu/home
Google Scholar: https://scholar.google.com/citations?user=se9kni0AAAAJ&hl=en&oi=ao

EDUCATION

PhD in Robotics, The Robotics Institute, Carnegie Mellon University, USA, 2009
Specialization in Computer Vision, GPA 3.92/4.0.
PhD Thesis: Spectral Graph Matching, Learning and Inference for Computer Vision
PhD Advisor: Professor Martial Hebert, Dean of the CMU School of Computer Science

Bachelor's in Mathematics and Computer Science, Hunter College – City University of New York, USA, 2003. GPA 3.88/4.0
Papers (CVPR, ICRA) on automatic registration of urban scenes, with Prof. Ioannis Stamos
Other research work on bipartite graph covering, with Prof. Cristina Zamfirescu

First Year of Undergraduate Studies – Faculty of Automation and Computer Science, Technical University of Cluj Napoca, 1999-2000. GPA 9.87/10

Habilitation in Computer Science, October 2015, Romanian Academy, Romania.

PROFESSIONAL AND ACADEMIC POSITIONS

Professor of Computer Science (2015-Present), University Politehnica of Bucharest.
Research Scientist (2010 - Present), Institute of Mathematics of the Romanian Academy.
Research Scientist (2022 - Present), Norwegian Research Center (NORCE), Norway

AWARDS

Google Research Award, 2021-2022
Romanian Academy "Grigore Moisil" Award in Mathematics, 2014 (as single recipient)
Computing Research Association (CRA) Outstanding Undergraduate Award, USA, 2003.
Joseph A. Gillet Memorial Prize in Mathematics, USA, 2003.
Intel PhD Fellowship Award, USA, 2007 (less than 30 in USA per year awarded).
National Science Foundation Scholarship Award, USA, 2002.
Prizes at the National Physics Olympiad: Absolute First – 1994; 2nd – 1996, 1998; 3rd – 1995.
National Olympiad of Mathematics, Honorable Mention, 1997.

SUPERVISION OF GRADUATE STUDENTS AND POSTDOCS

PhD supervisor at the Doctoral School of the Romanian Academy
All my PhD students are part of the current Research Team.

Graduated with PhD in 2022: Ioana Croitoru, Vlad Bogoin, Elena Burceanu, Emanuela Haller
Current PhD students: Alina Marcu, Dragos Costea, Mihai Pirvu, Mihai Masala, Nicolae Cudlenco and Florin Condrea.

We publish papers in top conferences and journals in computer vision, machine learning, robotics and general artificial intelligence, such as: ICCV, CVPR, TPAMI, IJCV, NeurIPS, ECCV, AAAI, IJCAI, ICRA, BMVC.

Former postdoctoral mentor of: Prof. Radu Ionescu (University of Bucharest), with joint papers at top international conferences (ICCV, CVPR, WACV) and Assoc. Prof. Oana Balan (UPB), with joint articles in relevant journals, conferences and books (highly cited in a relatively short period).

ORGANIZATION OF SCIENTIFIC EVENTS

General Chair and Co-Organizer, Embedded Computer Vision Workshop (EVW) for 2021, 2022, 2023 and 2024 (upcoming) in conjunction with Computer Vision and Pattern Recognition (CVPR) - top 3 international computer vision conference.
Website of EVW Workshops (all editions): https://embeddedvisionworkshop.wordpress.com/
Program Chair and Co-Organizer, Embedded Computer Vision Workshop (EVW) for 2020 in conjunction with European Conference on Computer Vision (ECCV) - top 3 international computer vision conference.
Co-Organizer of the **Eastern European Summer School in Machine Learning (EEML) 2019**, (www.eeml.eu), together with colleagues from DeepMind, University Politehnica of Bucharest and Bitdefender. It is the top international machine learning summer school in Eastern Europe.
Co-Organizer, together with colleagues from Diaspora and Romania, of workshop **„Human-centered Approaches for Trustworthy Artificial Intelligence", Smart Diaspora Conf. 2023.**
Co-Organizer of the **International Summer School on Imaging for Medical Applications (SSIMA)**, Sibiu, 2018 (http://gomit.tech/ssima/). It is the top international summer school in medical imaging in Eastern Europe, with participation from renowned scientists and professors.
Special Sessions Chair for **ACM International Conference on Multimedia Retreival**, 2017. It is one of the top international conferences in the world on multimedia processing.
Co-chair, Exploratory Workshop on Computer Vision, Learning and Robotics, for the conference "Diaspora in Cercetarea Stiintifica si Invatamantul Superior din Romania", 2012.

MAJOR COLLABORATIONS

1. We are part of a **Network of Excellence in Artificial Intelligence at the European Level** - a consortium of 33 of the most prestigeous European universities and research centers from 17 European countries working together on the large-scale project ELIAS: European Lighthouse of AI for Sustainability (https://elias-ai.eu/).

2. Starting with our **EEA and Norway Grant „Spacetime Vision", we are growing a long-term collaboration with the Norway Research Institute (NORCE),** one of the largest research organizations in Norway. Within NORCE, we emphasize our solid collaboration with the Research Group of Dr. Nabil Belbachir, a leading world expert on smart cameras and embedded vision systems. The collaboration evolved by: 1) the addition of several other projects, with Norwegian funding and involvement of our young researchers in the group (Vlad Licaret and Andrei Jelea); 2) regular bilateral research visits to Norway and Romania 3) joint organization of events such as the Embedded Vision Workshop in conjunction with top international conferences (CVPR and ECCV), over several years and continuing (2019-2023): https://embeddedvisionworkshop.wordpress.com/). 4) Participation as invited speaker at the Autumn School for Machine Learning for Vision for Industrial Applications (organized by NORCE), in a list of internationally renowned professors and scientists (https://www.norceresearch.no/en/events/malvic21).

3. **Long-term collaboration with Google Research**, through Dr. Rahul Sukthankar, Vice-President of Research at Google, with whom we developed many ideas and published papers in top conferences and journals in the last 5-10 years. Google also offered my group a **Research Award in 2021** for our excellent results.

4. **Active collaboration with researchers from the Romanian Diaspora from Google DeepMind:** together with well-known international scientists Viorica Patraucean and Razvan Pascanu, we co-organized scientific events (EEML 2019), wrote the very first draft of the Romanian AI Hub (in 2020) and participated as invited speaker in AI events they organized (Romanian AI Days, Brasov 2020 and Oradea 2023).

5. Together with my PhD students (at that time), **Ioana Croitoru and Vlad Bogolin**, we started in 2020 a collaboration with the group of **Andrew ZISSERMAN (University of Oxford),** from which two joint papers followed: a published ICCV 2021 paper (with 110 citations in 2 years) and another journal article, with Minor revision submitted at the prestigeous Artificial Intelligence journal.

RESEARCH COORDINATOR AND ARCHITECT IN INDUSTRY

- **Collaboration with BITDEFENDER:** coordinated a team of four people (Elena Burceanu, PhD; Emanuella Haller, PhD; Iulia Duta, currently doctoral student at Cambridge University; Andrei Nicolicioiu, doctoral student at MILA-Quebec AI Institute), with top results in machine learning and computer vision, published in premier conferences and journals (NeurIPS, TPAMI, ICCV, IJCAI, ECCV, BMVC).

  US Patent patent application with Bitdefender:
  Burceanu, E., Haller, E., Leordeanu, M., Prejbeanu, R. and Cernat, C.D., Bitdefender IPR Management Ltd, 2023. Computer Security Systems and Methods Using Self-Supervised Consensus-Building Machine Learning. U.S. Patent Application 17/656,644.

- **Collaboration with FORDAQ:** coordinated a team of five people on three artificial intelligence projects for automating the wood industry: **1)TallyExpress** (tallyexpress.com), the first intelligent system in the world for measuring and counting lumber boards with a smartphone (2 US Patents granted), with over 200 clients in United States and over 2 Million US dollars revenue in the last 3 years; **2)** The first system of counting and measurement of wood logs with a smartphone **3) NeuralGrader** (neuralgrader.ro), an AI system that identifies defects and grades lumber at production speed. The project was co-financed, during the first two years of development, by the European Regional Development Fund through the Competitiveness Operational Program 2014-2020.

  Granted US Patents:
  1. Leordeanu, Marius, Alina Elena Marcu, Iulia Muntianu, and Cătălin Mutu. "Automatic detection, counting, and measurement of lumber boards using a handheld device." (Part 2) U.S. Patent 11,216,905. 2022
  2. Leordeanu, Marius, Iulia Muntianu, Dragos Cristian Costea, and Catalin Mutu. "Automatic detection, counting, and measurement of logs using a handheld device." U.S. Patent 11,189,022, 2021.
  3. Leordeanu, Marius, Vlad Licaret, Tudor Buzu, Iulia Muntianu, and Catalin Mutu. "Automatic detection, counting, and measurement of lumber boards using a handheld device." U.S. Patent 10,586,321, 2020.

- **Collaboration with ARNIA:** coordinated research teams on various AI projects for medical applications, self-driving cars, document forgery detection, with clients in South Korea and Germany. Two papers published in top international conferences:
  1. Naiden, A., Paunescu, V., Kim, G., Jeon, B. and Leordeanu, M., 2019. Shift r-cnn: Deep monocular 3d object detection with closed-form geometric constraints. *IEEE international conference on image processing (ICIP)* **(85 citations)**

2. Condrea, F., Ivan, V.A. and Leordeanu, M., 2020. In search of life: Learning from synthetic data to detect vital signs in videos. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops* **(11 citations).**

- **Collaboration with SIEMENS:** coordinating Florin Condrea (PhD student at IMAR and AI Research Engineer at Siemens), together with Dr. Saikiran Rapaka (Siemens, Princeton) and Dr. Lucian Itu (Siemens, Brasov) on various AI projects in medical image analysis. So far we have one article submission to a major journal:
  1. *Florin Condrea, S Rapaka, L Itu, P Sharma, J Sperl, AM Ali, M Leordeanu, "Anatomically aware dual-hop learning for pulmonary embolism detection in CT pulmonary angiograms." arXiv preprint arXiv:2303.17593 (2023).* ***3 Citations*** *Accepted with Minor Revisions at Computers in Biology and Medicine* ***(Q1) IF*** *7.7*

VISITING SCHOLAR AND INVITED TALKS

Invited Professor at University of Trento (Italy), to teach a doctoral short course, based on my book „Unsupervised Learning in Space and Time", September 2023.

„From the Romanian Research Laboratory to the Global Industry" talk given to distinguished representatives of the Minsitry of Education, Ministry of Research and Ministry of Defense, at the Romanian Parliament, December 2022.

Invited Speaker at the Autumn School on Machine Learning and Vision for Industrial Applications, Norway, October 2021.

Other invited talks: over 60 invited talks at international conferences, summer schools and labs, including talks given to: European Space Agency Workshiop on Artificial Intelligence (2021), TEDxUPB (https://www.youtube.com/watch?v=3DolxC2CW14&t=6s), DeepMind (London), Visual Geometry Group of Andrew Zisserman (University of Oxford), Computer Vision Group of Kostas Daniilidis (University of Pennsylvania, USA), Computer Vision Group of Ioannis Kakadiaris (University of Houston, USA), Computer Vision Group of Ioannis Stamos (City University of New York, USA).

SCIENTIFIC AND CULTURAL TV AND RADIO PROGRAMS

Special guest on many national TV and Radio Programs with ample interviews and discussions about artificial intelligence, in order to raise the public awareness and knowledge about this important topic, with its current limitations, as well as vast potential benefits for the society.
Full list of programs is available at: https://sites.google.com/site/mariusleordeanu/talks-and-tv-shows

Selected Programs (also available on YouTube):
Antena 1 – „Observatorul de Noapte" (Live), Interview with Marius Pancu, December 2023
Radio Romania Actualitati – Live on „Prietenii de la Radio" (2022) and „Intre Prieteni" (2020)
TVR1 – host of the "Authentic Romania" series, Episode 2, December 2019
TVR2 – "A Second Emigration", January 2016
Digi24 – "Bonton", February 2015
Digi24 – Digipedia Science – „Limits of Perception", hosted by Alexandru Mironov, April 2015
Discovery Channel – "A Career in Science", October 2014

MEMBER OF THE EDITORIAL BOARD OF PRESTIGIOUS JOURNALS

Editor - Transactions on Pattern Analysis and Machine Intelligence, Impact factor: 24.34.
Editor - Computer Vision and Image Understanding, Impact factor: 4.8.
Editor - Machine Vision and Applications (MVA), Impact factor: 3.3.
Guest Editor - „Sensors and Techniques for 3D Object Modelling", Sensors, 2020, IF: 3.8.

AREA CHAIR IN TOP CONFERENCES IN ARTIFICIAL INTELLIGENCE

Area Chair for the International Conference on Computer Vision (ICCV) 2019, Rank A+
Area Chair for Computer Vision and Pattern Recognition (CVPR) 2020, Rank A+
Area Chair for European Conference on Computer Vision (ECCV) 2020, Rank A
Area Chair for Winter Applications for Computer Vision (WACV) 2018, Rank A
Senior PC for Int. Joint Conference on Artificial Intelligence (IJCAI) 2020, 2022, 2024, Rank A+

PUBLISHED BOOKS, MUSIC COMPOSITION AND ART COLLABORATIONS

Scientific book

M. Leordeanu, Unsupervised Learning in Space and Time: A Modern Approach for Computer Vision using Graph-based Techniques and Deep Neural Networks, 297 pages, Springer Nature, May 2020. ISBN: 978-3-030-42127-4.

It is the best-selling book in the world on the topic of Unsupervised Learning since 2020, and it the 15th of all time, according to Bookauthority.org:
https://bookauthority.org/books/best-selling-unsupervised-learning-books?fbclid=IwAR3eSbrcBhLw1TCPaYOKFkDZro2VoeEQHjmrU0ilfojnQRgwYJQjJ2VkeXA

Artificial Intelligence and Art Projects in collaboration with National University of Arts

1. Artist Cristina Lazăr, Engineer Nicolae Roşia, Prof. Univ. Dr. Petru Lucaci (UNArte) and Prof. Univ. Dr. Marius Leordeanu (UPB) "SmileProject: Deep Immersive Art with Realtime Human AI Interaction" (https://sites.google.com/view/smile-Project), presented at: National Festival of Young Artists - Diploma (https://diplomafestival.ro/portofolii/proiectulzambet),

October 2019; Binar National Festival (https://institute.ro/digital/binar-2019-5367.html), Novembre 2019; ArtWalkStreet Festival, presented on Calea Victoriei, Piața Revoluției (Bucharest Center), September 2019.

2. Dragos Costea, Cristina Lazăr and Marius Leordeanu, "Between Worlds", art with AI visual work, selected and exhibited at Artbox.Project Miami 3.0, Miami, USA, December 2022.

3. Dragos Costea, Alina Marcu, Cristina Lazar, Marius Leordeanu *Maia: A Real-time Non-Verbal Chat for Human-AI Interaction* (initial version published on Arxiv, 2024), submitted to Nature Scientific Reports (Q1) IF 4.6, special issue on Engineering Human-Machine Interfaces

Popular science book
Marius Leordeanu, „My name is blue", 178 pages, Valea Verde, 2016.
ISBN: 606-8834-04-7. Available at:
https://www.librariaeminescu.ro/ro/isbn/606-8834-04-7/Marius-Leordeanu__Ma-numesc-albastru.html

Poetry book
Marius Leordeanu, "The Story of a Word", 76 pages, Papirus Media, 2013.
ISBN: 606-8137-39-1. Available at:
https://www.librariaeminescu.ro/ro/isbn/606-8137-39-1/Marius-Leordeanu__Povestea-unui-cuvant.html

Music
Graduate of the „George Enescu" Music School, 1987-1995 (8 years)
Specialization: Violin - Prof. Marusciac and Piano (secondary) - Prof. Rodica Gheorghiu

Music album (piano and electronic):
Composition and Intepretation: Marius Leordeanu,
Album title: „Supersonic".
Recorded at Kemper Music Studios / Bucharest.
Produced by Ciprian Lemnaru and Marius Leordeanu.
Available on most music channels, including:
Spotify: https://open.spotify.com/album/6SPhzD088xm7xfqvIvzrg7
YouTube:
https://youtube.com/playlist?list=OLAK5uy_mbGgwl0Mr08Ny0H9U8WkWzGtTTflMEWz0

Other musical works on YouTube: https://www.youtube.com/watch?v=kPD-krc5lFw&list=PLPrg1RkeOIEH1y8MNv7X_tUf5bYJez42y

Google Scholar (268 citations)
Age: 32 years (Born: 10.09.1991)

Alina MARCU
PhD student

INTRODUCTION

I am a PhD student at the Institute of Mathematics of the Romanian Academy, coordinated by Prof. Dr. Marius Leordeanu. My research interests revolve around subjects such as semi-supervised and unsupervised learning methods, with a focus on multiple representation learning for scene understanding from aerial videos. I am grateful to be part of a young and highly motivated team striving to make groundbreaking contributions in the field of Artificial Intelligence. More about us you could find on our website: https://sites.google.com/view/spacetime-vision-robotics-lab

EDUCATION

PhD Student, *Institute of Mathematics "Simion Stoilow" of the Romanian Academy, Romania (IMAR)* 2017 - present
Master's Degree in Artificial Intelligence, *University Politehnica of Bucharest, Romania (UPB)* 2014 - 2016
Bachelor Degree in Computer Science, *University Politehnica of Bucharest, Romania (UPB)* 2010 - 2014
Baccalaureate Diploma, *"Mihai Viteazul" National College, Bucharest, Romania (CNMV)* 2006 – 2010

RESEARCH / TECHNICAL EXPERIENCE

(January 2022 – December 2023) Research Assistant (IMAR) / *Project: UEFISCDI Grant PN-III-P4-ID-PCE-2020-2819, 2021-2023 (250K Euro), „HyperVision: Unsupervised Visual Learning through Intelligent Equilibrium in Hypergraphs of Neural Networks"*

- Developed a state-of-the-art learning mechanism for finding a synergy between multiple representations of the real world from aerial videos using a hypergraph of neural networks. We also published Dronescapes, a large-scale dataset with real-world videos from UAVs for multi-task learning.

(January 2019 – December 2021) Research Assistant (UPB) / *Project: EEA and Norway Grant 2019-2022: EEA-RO-2018-0496 (1.5 Million Euro) "Spacetime Vision – Towards Unsupervised Learning in the 4D World"*

- Ambitious research project in which we tackle the difficult task of leveraging consensus over multiple dense visual representations, in the context of multi-task learning, while also taking into account the temporal dimension, in order to generate a robust algorithm that would only need additional RGB videos (semi/self-supervised learning) at the input for improved overall performance and also consistent predictions throughout time.

(December 2016 – December 2018) Research Assistant (Fordaq S.A.) / Project: European Funds Grant 2019-2021: POC/524/2/2 (1.2 Million Euro), - *„Neural Grader - Automated System*

for Semantic Analysis and Grading of Wood in Images using Efficient Computer Vision Methods and Deep Neural Networks".

- Develop technologies for precise detection and measurement of planks (TallyExpress) and logs (LogSize) from images captured by mobile devices, using Computer Vision and Deep Learning techniques. Build optimized models so that the whole solution ran directly on the user's mobile device in real time. While a member of the R&D we won the Neural Grader project, in which I developed a solution for multiple defect types precise segmentation, to improve grade quality estimation in order to reduce prime material waste.

(January 2015 – December 2018) Research Assistant (Autonomous Systems) / *Project: European Funds Grant 2015-2019: POC-A1.2.1D-2015-P39-287 (1 Million Euro) – „Automatic interpretation of images and video sequences using natural language processing" (P*

- Worked on remote sensing problems (due to the lack of data), particularly object detection, and scene semantic segmentation (houses, roads, and vegetation) using a combination of deep learning algorithms combined with mathematical optimization for forming road graphs. I was also in charge of building the first-of-its-kind multi-class video semantic segmentation dataset—Ruralscapes (publicly available). I designed NNs and improved the semantic segmentation algorithms for real-time embedded systems.

SKILLS

Tools and Languages	Python, Java, Matlab, C++, Git, Latex
Research Expertise	CV, Scene Understanding, Multi-task Unsupervised Learning, Deep Learning, Robotics (UAVs), NLP
Communication	Romanian (native), English (fluent), French/Spanish (intermediate)

ACTIVITIES and ACHIEVEMENTS

Top-Conference Reviewer — AAAI, CVPR, ICCV, NeurIPS, IJCAI, ICLR, ICML, WACV, ACCV, T-PAMI 2017—present

US Patent— Automatic detection, counting, and measurement of lumber boards using a handheld device - No. 11,216,905 2022

Invited speaker — International School on Imaging with Medical Applications (SSIMA) "TensorFlow - Keras programming course" 2019

Teaching assistant—Eastern European Machine Learning Summer School (EEML) 2019

Invited speaker – Conf. on Recent Advances in Artificial Intelligence, University of Bucharest "Automatic Annotation for Semantic Segmentation in Aerial Videos" 2019

Best Paper Award at Computer Vision for UAVs Workshop, International Conference on Computer Vision (ICCV) - Costea, Marcu, Slusanschi, and Leordeanu. *Creating roadmaps in aerial images with generative adversarial networks and smoothing-based optimization*. 2017

4th place (out of 54) at UrbanMapper3D Challenge, organized by United States Special Operations Command and TopCoder, with A. Marcu and M. Leordeanu (6k dollars prize) 2017

First Prize at the Session of Special Scientific Communications, with Master's Thesis "A local-global approach to semantic segmentation in aerial images" **(Thesis and paper with over 60 citations on Google Scholar)** 2016

Google Scholar (282 citations)
Age: 33 years (Born: 21.07.1990)

Dragos COSTEA
PhD student

INTRODUCTION

I am a PhD student at the University Politehnica of Bucharest and the Institute of Mathematics of the Romanian Academy, under the supervision of Prof. Dr. Marius Leordeanu and Prof Dr. Emil Sluşanschi. My research interests revolve around image-based localization, depth estimation, scene/object representation, embedded/real-time algorithms. You can find more information about our group on our website: https://sites.google.com/view/spacetime-vision-robotics-lab

SKILLS

Tools and Languages	Python, Java, Matlab, C++, Git, Latex
Research Expertise	Computer Vision, Scene Understanding, Deep Learning, UAVs
Communication	Romanian (native), English (fluent), French/Spanish (intermediate)

RESEARCH / TECHNICAL EXPERIENCE

(June 2019 – Current) Research Assistant – UPB – upb.ro
Member of International Research Projects:
ELIAS: European Lighthouse of AI for Sustainability, Call ID: HORIZON-CL4-2022-HUMAN-02-02

- Contributions for UC5: AI for Forecasting Vegetation State – adapt the previously developed consensus algorithm and create new tools for vegetation state prediction

EEA and Norway Grant 2019-2022: EEA-RO-2018-0496 (1.5 Million Euro) "Spacetime Vision – Towards Unsupervised Learning in the 4D World"

- Contributions for a graph consensus algorithm on multiple representations, such as semantic segmentation, depth estimation, and camera normals prediction from real-world UAV videos.

(May 2022 – Current) AI Research Engineer – humans.ai

- Synthetic media generation and ION – Romania's first AI government adviser

(May 2019 – December 2022) AI Research Engineer – medicai.io

- CT/MRI segmentation

(December 2015 – February 2019) AI Research Engineer – skinvision.com

- Skin cancer detection from smartphone images

(January 2018 – September 2018) AI Research Assistant – fordaq.com

- Develop technologies for precise detection and measurement of logs (LogSize) from images captured by mobile devices, using Computer Vision and Deep Learning techniques.

(January 2015 – December 2018) AI Research Assistant (Autonomous Systems) / *Project: European Funds Grant 2015-2019: POC-A1.2.1D-2015-P39-287 (1 Million Euro) – „Automatic interpretation of images and video sequences using natural language processing"*

- Software development for drone localization using aerial images and road network reconstruction with mathematical optimization for forming road graphs

(March 2014 – August 2014) Intern – INRIA – inria.fr

- Image processing software for search and rescue operations

(March 2014 – August 2014) Intern – CentraleSupélec – centralesupelec.fr

- Middleware development for drone swarm simulation

EDUCATION

PhD Student, *University Politehnica of Bucharest and the Institute of Mathematics "Simion Stoilow" of the Romanian Academy, Romania (IMAR)* 2017 – present
Supervisors: Prof. Dr. Marius Leordeanu and Prof Dr. Emil Sluşanschi
Master's Degree in Real time systems, *University Politehnica of Bucharest, Romania (UPB)* 2013 – 2015
Master's Degree in Automatic control, *CentraleSupélec, Gif-Sur-Yvette, France* 2013 – 2014
Bachelor Degree, First Class in Informatics, *Coventry University, United Kingdom* 2011 - 2012
Bachelor Degree in Computer Science, *University Politehnica of Bucharest, Romania (UPB)* 2009 - 2013
Baccalaureate Diploma, *"Mihai Viteazul" National College, Bucharest, Romania (CNMV)* 2005 - 2009

ACTIVITIES and ACHIEVEMENTS

Top-Conference/Journals Reviewer — AAAI, CVPR, ICCV, NeurIPS, IJCAI, ICLR, ICML, WACV, ACCV, T-PAMI, RA-L 2017—present
US Patent— Automatic detection, counting, and measurement of logs using a handheld device No. 11189022 2021
Invited speaker — International School on Imaging with Medical Applications (SSIMA) "TensorFlow - Keras programming course" 2019
Best Paper Award at Computer Vision for UAVs Workshop, International Conference on Computer Vision (ICCV) - Costea, Marcu, Slusanschi and Leordeanu, *Creating roadmaps in aerial images with generative adversarial networks and smoothing-based optimization*. 2017
4th place (out of 54) at UrbanMapper3D Challenge, organized by United States Special Operations Command and TopCoder, with A. Marcu and M. Leordeanu (6k dollars prize) 2017
First place (Absolute First) and **Special Jury Prize** (12-th Grade) National Olympiad of Romanian Literature 2009
Honorable Mention, International Olympiad of Romanian Literature (12-th Grade) 2009

Mihai PIRVU

Google Scholar Profile (82 citations)

Personal information

Birth place: 25.12.1993. Bucuresti

Deeply interested in Artificial Intelligence, Computer Vision and Human-Computer Interaction

Education

2008 - 2012 - National College"Elena Cuza", Math and Informatics
2012 - 2016 - Faculty of Automatic, Control and Computer Science, Computer Science department
2016 - 2018 - Faculty of Automatic, Control and Computer Science, masters in A.I.
2020 - ongoing - PhD in Artificial Intelligence at the Institute of Mathematics of the Romanian Academy, supervised by Prof. Dr. Marius Leordeanu

Work history

2016 july - 2017 august: **Tremend**, software engineer in the embedded domain.
2017 september - 2019 april: **Autonomous Systems**, AI Research Assistant, Machine Learning R&D, **IAVPLN project.**
2018 july - 2021 january: **MorphL**, Machine Learning Engineer. Later acquired by **Algolia.**
2019 september - 2023 may: **Faculty of Automatic, Control and Computer Science**, Research Assistant, Machine Learning R&D, **Spacetime Vision project.**
2021 january – present: **Algolia**, Machine Learming Engineer (part-time)

Some relevant personal and professional projects

- **Bachelor's Thesis project (2016) - Designing a client-server VPN application for MiniOS running on Xen Hypervisor.**
  The project consisted in implementing a VPN server to efficiently run in Mini OS, a research cloud operating system aimed at fast boot times. Links: thesis pdf, code
- **Master's Thesis project (2018) - Depth estimation from RGB images augmented with additional channels using neural networks**
  The project implemented a convolutional neural network for depth estimation using only RGB photos alongside other computed channels, such as optical flow, semantic segmentation of the depth estimation of a previous time step. Links: thesis & presentation pdfs, code
- **SafeUAV. Estimating depth and safe landing areas for UAVs using RGB images (2018)**
  This project was implemented as part of the IAVPLN european project. At its core it is a convolutional neural network that predicts depth, for object avoidance, as well as plane orientation, for safe landing, based on drone images. Training was done purely on synthetic data that were aligned with the real world footage that we have tested on showcasing the possibility of synthetic to real transfer. The paper was accepted at ECCV 2018 UAVision workshop. Links: project page, paper pdf, code
- **SfmLearner#. Unsupervised depth estimation from videos (2019)**
  This project implements a depth estimation network using the spatio-temporal consistency of nearby video frames. On top of the already published photometric loss, it uses additional constraints, such as pose consistency across multiple frames. The results were showcased in a

poster at EEML 2019. Links: results, poster pdf, code

- **Semi-Supervised Learning for Multi-Task Scene Understanding by Neural Graph Consensus (2020)**
  In this project, we have built a system that puts together multiple ways of seeing and understanding a scene, complementary to RGB images. We defined a bipartite graph structure where some representations were known and used as inputs, while others were unknown and must be predicted. Each representation is a node and the edges are convolutional neural networks. The pathways leading to an output node were aggregated using ensemble methods. The training was done iteratively in a semi-supervised manner. For this project I implemented a training framework that helped massively with the large number of neural networks that we had to manage. The paper was accepted at AAAI 2021. Links: project page, paper pdf, code
- **Algolia Recommend (2021-2022)**
  I designed and developed the initial recommender system used at Algolia which became a standalone product in the company.
- **Depth distillation: unsupervised metric depth estimation for UAVs by finding consensus between kinematics, optical flow and deep learning (2021)**
  This project implements a system that uses multiple complementary depth estimation algorithms, like neural networks, but also classical odometric based geometrical ones as well as Sfm. Then it treats all these independent signals as an ensemble and produces an output that is more robust than each of them. It was implemented as part of the SpaceTime Vision project. The paper was accepted at CVPR 2021 workshops. Links: paper pdf, code
- **Algolia Personalization Platform (2022-2024)**
  I am am currently working on designing and implementing a personalization platform for the Algolia clients using recurrent neural networks for improved next session predictions. The project uses massive datasets and complex data pipelines, so besides the algorithmical ML challenge, it is also a big data engineering problem.
- **Multi-Task Hypergraphs for Semi-supervised Learning using Earth Observations (2023)**
  The project consisted of using the NASA Earth Observation (NEO) data to observe and predict anomalies using convolutional neural networks from multiple real world sensors. Using this analysis on a timeline of about 20 years, we could statistically observe a climate shift. The paper was accepted at ICCV23 workshops and was developed during the SpaceTime Vision project. Links: paper pdf, code

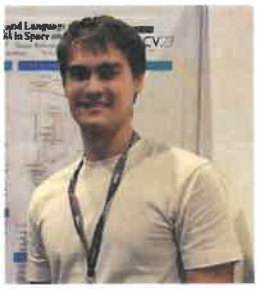
Other smaller projects and contributions

- **Chess engine (2014)** - Project for the Algorithms Design course, 1st in series, 4th overall (code)
- **LCPL language using LLVM (2015)** - Project for the compilers course (code)
- **Speech to Text (2017)** - Project for the machine learning course (code)
- **Computer Vision and ML library for classical algorithms (2016-2020)** - Project in which I implemented various classical algorithms, such as HoG, Superpixel, ID3 trees, Lucas-Kanade optical flow, feed forward and convolutional networks (code)
- **Conference and journal reviews (2018-2024)** - I have done reviews at various Machine Learning conferences and journals, such as TPAMI, ECCV, AAAI.
- **2NHack (2018)** - ML hackathon at which I have taken the 2nd place for a method of automatic 3D bounding box detection of indoor objects trained on synthetic data only.
- **2NHack (2020)** - Online ML hackathon at which I have taken the 2nd place for a personal training assistant which used pose estimation to do image matching of various physical exercises compared to professional trainers for instant feedback using a webcam.

(presentation)

- **Video Representations Extractor (2021-2024)** - Tool for automatic extraction of mathematical and learned representations from videos. Used for semi-supervised learning (code)
- **Neural Network Algorithms (2022-2024)** – Experiments using various Neural Network architectures and algorithms, such as Generative Adversarial Networks, Variational Auto Encoders, Language Models or Visual Transformers. (code)
- **Lightning Module Enhanced (2022-2024)** - Library on top of Pytorch Lightning designed for fast experimentation and model iterations. (code)
- **Self-supervised Hypergraphs for Learning Multiple World Interpretations (2022)** - The project is natural extension of the 2020 paper, introducing a new dataset with real drone footage mostly taken from Romania. The paper was accepted at ICCV23 workshops. (pdf)

Mihai MASALA



Google Scholar:
https://scholar.google.ro/citations?user=KDzBOtgAAAAJ&hl=ro

DBLP Profile: https://dblp.org/pid/206/1244.html
Total Citations (Google Scholar): **119**, H-index: **5**.

EDUCATION

PhD Student, *Institute of Mathematics "Simion Stoilow" of the Romanian Academy, Romania (IMAR)* Supervisor: Prof. Marius Leordeanu 2019 – present

Master's Degree in Artificial Intelligence, *University Politehnica of Bucharest, Romania (UPB)* 2017 – 2019

Bachelor Degree in Computer Science, *University Politehnica of Bucharest, Romania (UPB)* 2013 – 2017

Baccalaureate Diploma, *"Tudor Vianu" National College of Computer Science, Bucharest, Romania (CNITV)* 2009

AWARDS AND FELLOWSHIPS

"BRD Groupe Societe Generale Fellowship" - Recipient of research grant for studying and developing Large Language Models for the Romanian Language: 2023-2024

LIST OF SELECTED PUBLICATIONS AS FIRST AUTHOR

1. Masala, M., Cudlenco, N., Rebedea, T., & Leordeanu, M. (2023). Explaining Vision and Language through Graphs of Events in Space and Time. In *Proceedings of the IEEE/CVF International Conference on Computer Vision* (pp. 2826-2831).

2. Masala, M., Ruseti, S., Rebedea, T., Dascalu, M., Gutu-Robu, G., & Trausan-Matu, S. (2021). Identifying the Structure of CSCL Conversations Using String Kernels. *Mathematics*, *9*(24), 3330.

3. Masala, M., Iacob, R. C. A., Uban, A. S., Cidota, M., Velicu, H., Rebedea, T., & Popescu, M. (2021, November). jurBERT: A Romanian BERT model for legal judgement prediction. In *Proceedings of the Natural Legal Language Processing Workshop 2021* (pp. 86-94).

4. Masala, M., Ruseti, S., Dascalu, M., & Dobre, C. (2021, June). Extracting and clustering main ideas from student feedback using language models. In International Conference on Artificial Intelligence in Education (pp. 282-292). Cham: Springer International Publishing.

5. Masala, M., Ruseti, S., & Dascalu, M. (2020, December). Robert–a romanian bert model. In *Proceedings of the 28th International Conference on Computational Linguistics* (pp. 6626-6637).

6. Masala, M., Ruseti, S., Gutu-Robu, G., Rebedea, T., Dascalu, M., & Trausan-Matu, S. (2018). Help me understand this conversation: Methods of identifying implicit links between cscl contributions. In *Lifelong Technology-Enhanced Learning: 13th European Conference on Technology Enhanced Learning, EC-TEL 2018, Leeds, UK, September 3-5, 2018, Proceedings 13* (pp. 482-496). Springer International Publishing.

7. Masala, M., Ruseti, S., Gutu-Robu, G., Rebedea, T., Dascalu, M., & Trausan-Matu, S. (2018). Identifying implicit links in CSCL chats using string kernels and neural networks. In *Artificial Intelligence in Education: 19th International Conference, AIED 2018, London, UK, June 27–30, 2018, Proceedings, Part II 19* (pp. 204-208). Springer International Publishing.

8. Masala, M., Ruseti, S., & Rebedea, T. (2017). Sentence selection with neural networks using string kernels. *Procedia Computer Science*, *112*, 1774-1782.

RESEARCH / TECHNICAL EXPERIENCE

(August 2019 – May 2023) Research Assistant (UPB) / *Project: EEA and Norway Grant 2019-2022: EEA-RO-2018-0496 (1.5 Million Euro) "Spacetime Vision – Towards Unsupervised Learning in the 4D World"*

- Defined a novel and ambitious representation of both video and texts, in the form of Graph of Events in Space and Time (GEST). GESTs can be used for describing both video and texts, used for describing events, for comparing texts using graph matching and for generating videos from text.

(December 2016 – December 2018) Research Assistant (Autonomous Systems) / *Project: European Funds Grant 2015-2019: POC-A1.2.1D-2015-P39-287 (1 Million Euro) – „Automatic interpretation of images and video sequences using natural language processing"*

- Worked on text similarity metrics coupled with defining, and processing of ontologies. We also built a custom ontology used for answering questions in natural language, questions about information found in videos.

ACTIVITIES

Top-Conference Reviewer — EMNLP, ACL, IJCAI

Nicolae CUDLENCO

Google Scholar (Citations: 36)
https://scholar.google.com/citations?user=WB0Fx1gAAAAJ
Linkedin profile: https://www.linkedin.com/in/nicolae-cudlenco/

Education

2018 – present

Institute of Mathematics of the Romanian Academy
PhD Computer Vision

PhD Supervisor: Prof. Marius Leordeanu
Research direction: Investigating the process of human perception, at the intersection of vision and language, using deep learning techniques

2016 - 2018

University Politehnica of Bucharest
Faculty of Automatic Control and Computer Science
M.Sc. Artificial Intelligence

Master thesis supervisor: Prof. Marius Leordeanu
Diploma grade: 10 out of 10
Master thesis: **Decoding bioelectric signals of the human body**

- Created a dataset with over 6 hours of EEG recording
- Classified the visual classes of images from EEG signals (Ridge Regression and RNNs)
- Best result: over *90%* prediction accuracy
- Classified arrhythmias using an open-source ECG database (POC research for CardioMedive

2012 – 2016

University Politehnica of Bucharest
Faculty of Automatic Control and Computer Science
B.Sc. Computer Science

Thesis supervisor: Assoc. Elena Apostol
Diploma grade: 10 out of 10
Bachelor thesis: **Optimized Feature Selection for eHealth Data**.

- In partnership with a local pediatric neuropsychiatry clinic
- Developed an algorithm which finds clinically relevant features in a medical dataset
- Distributed the algorithm with Hadoop using the MapReduce paradigm

Member of Scientific Projects Coordinated by the Team Leader

- EEA and Norway Grant 2019-2022: EEA-RO-2018-0496 (1.5 Million Euro) "Spacetime Vision – Towards Unsupervised Learning in the 4D World". Team Leader: Prof. Leordeanu Marius

- UEFISCDI Grant 2018-2020: TE-2016-2182 (100K Euro) « Vision in Words : Automatic Linguistic Description of Objects, People and their Interactions in Indoor Videos". Team Leader: Prof. Leordeanu Marius

Awards

- **December 2020 - UEFISDCI top journal award for the publication Nicolae Cudlenco,** Popescu, N., & Leordeanu, M. **(2020)**. Reading into the mind's eye: Boosting automatic visual recognition with EEG signals. Neurocomputing, 386, 281-292

Invited presentations at conferences and summer schools

- **July 2019** Eastern European Machine Learning Summer School
- **November 2018** 1st International Conference on Neuroscience, Neuroinformatics, Neurotechnology and Neuro-Psychopharmacology
- **July 2018** SSIMA – International Summer School on Imaging for Medical Applications

Professional experience

2023 - present
Buchi AG / Flawil, CH
Professional Software Engineer
Worked on a simulator for a spectrometer, capable to generate NIR and VIS signals using ML techniques.
Designing and implementing the software for pure chromatography systems

2021 – 2023
Acodis AG / Winterthur, CH
Experienced Software Engineer
Built the Acodis Platform – a web application for automatic data extraction using IDP
Developed new features, integrated, adapted, and evaluated ML solutions into the Acodis Platform

2018 – 2021
Independent Consultant / Bucharest, RO
Designed, implemented, and delivered software applications across a wide range of platforms and technologies, such as mobile, web, desktop applications, databases, and plugins.

2016 – 2018
Yourshore / Bucharest, RO
Software Engineer
Developed plugins for Autodesk Vault, Bentley ProjectWise, Microsoft Office

2014 – 2016
Graitec / Bucharest, RO
Junior Software Engineer
Created Advance Powerpack – a suite of 3D modeling tools for Autodesk Advance Steel
Implemented and optimized an internal library with various geometry algorithms

Florin CONDREA

Google Profile (11 Citations)

LinkedIn: www.linkedin.com/in/fcondrea

Education

November 2020 - Present

PhD candidate in Machine Learning, Institute of Mathematics of the Romanian Academy
PhD Theme: Deep visual learning models for medical imaging and analysis
PhD Advisor: Professor Marius Leordeanu

October 2018 - July 2020

Master's Degree in Artificial Intelligence, University of Bucharest, GPA: 9:34
Master's Thesis: Vital sign detection in the thermal domain using synthetic data
Co-advisors: Senior Lecturer Ciprian Paduraru and Professor Marius Leordeanu

October 2015 - July 2018

Bachelor's Degree in Mathematics and Informatics, University of Bucharest, GPA: 9.06
Bachelor's Thesis: Thesis: Predictive models for Subscriber Intelligence Service
Advisor: Senior Lecturer Ciprian Paduraru, in partnership with Adobe Systems

Research

My research is focused on deep learning applied in the medical domain, with focus on computer vision and medical imaging. Topics of interest are represented by deep learning, unsupervised learning, self-supervised learning, semi-supervised learning.

Academic activity

Volunteered as paper reviewer for several high impact journals and conferences:

Embedded Vision Workshop at CVPR
IEEE Transactions on Pattern Analysis and Machine Intelligence Journal
Computer Vision and Image Understanding Journal

Work experience

Computer Vision Researcher at Siemens: *March 2021 to Present*

Working with an industry leading team to research and apply machine learning in projects in the medical domain. With focus on state-of-the-art deep learning algorithms applied in cardiovascular medical imaging, developed high impact lifesaving technologies.

Deep learning Researcher at Arnia: *September 2018 - March 2021*

Researched and developed machine learning prototypes to be applied in various domain, ranging from Self-driving cars, Action recognition to biomedical applications such as Novel drug Discovery and Physiological sign detection.

Machine Learning Intern at Adobe Systems: *February 2018- May 2018*

Bachelor's thesis partnership developed a large-scale recommender system for media content.

Software Developer Intern at Bitdefender: *Jul 2017- Sep 2017*

Application development in C++.

Poster presentations at Summer Schools and Conferences

Eastern European Machine Learning Summer School 2019
Eastern European Machine Learning Summer School 2021
Romania AI Days 2023
Smart Diaspora 2023

Teaching

Machine Learning in Visual Arts Course at University of Bucharest
February 2020 - June 2020
Industry organized course on computer vision and machine learning

Other Achievements

3rd place at ActivityNet Active Speaker Detection Challenge at the international conference on Computer Vision and Pattern Recognition 2019 (Rank A*)

Vlad LICARET

Google Profile:
https://scholar.google.com/citations?user=yrohmTYAAAAJ&hl=en&oi=ao

Total number of citations: **90**

Research and Development Experience

Norwegian Research Centre 2023 – present

- ω Machine Learning Engineer, coordinated by Marius Leordeanu
- ω Developing and implementing a human detection & tracking algorithm for 3D point clouds which are captured using a custom LiDAR sensor designed in-house by NORCE

Fordaq 2021 – 2023

- ω Machine Learning Engineer, coordinated by Marius Leordeanu
- ω Worked on the design and implementation of a wood quality estimation pipeline, having the aim to automate an industry standard grading procedure that's usually done manually

Polytechnic University Bucharest 2019 – 2023

- ω R&D assistant, under the supervision of Marius Leordeanu
- ω Worked on a research project entitled 'Towards Unsupervised Learning in the 4D World' which primarily concerned itself with multi-task learning for UAVs
- ω Published multiple papers with a key focus in unsupervised learning techniques, such as: improving and finding new approaches for depth estimation in video

Freelance contractor – 2022

- ω Machine Learning Consultant
- ω Helped with the design and implementation of a full-stack face detection and recognition system destined for secure user authentication

Autonomous Systems 2016 – 2019

- ω Machine Learning Engineer, coordinated by Marius Leordeanu
- ω Designed and implemented various interconnected modules (depth estimation, plane classification, label propagation in video

etc.) while working on a larger, complex system tackling the problem of total scene understanding for drones or other UAVs
- Co-developed a semantic segmentation architecture for analyzing satellite and aerial images

Fordaq 2016 – 2017

- Machine Learning Engineer
- Co-developed a novel Computer Vision system for the timber processing sector that succeeded in replacing manual measurements in a commercial setting

Teamnet International Solutions 2014 –2016

- AngularJS & NodeJS Developer
- Worked on an extensive web application suite for the medical sector and built an online sports betting platform from the ground up as part of a small but dedicated team

MultiDataSoft S.R.L. - 2012 – 2014

- PLSQL Developer

Selected Publications

Patents

- Automatic Detection, Counting, and Measurement of Lumber Boards Using a Handheld Device. US10586321B2
  Inventors: Marius Leordeanu, Vlad Licaret, Tudor Buzu, Iulia-Adriana Muntianu, Catalin Mutu, 2020

Papers

- Licaret, Vlad, et al. "UFO Depth: Unsupervised learning with flow-based odometry optimization for metric depth estimation." International Conference on Robotics and Automation, 2022
- Pirvu, Mihai, et al. "Depth distillation: unsupervised metric depth estimation for UAVs by finding consensus between kinematics, optical flow and deep learning." CVPR Embedded Vision Workshop, 2021
- Marcu, Alina, et al. "Semantics through Time: Semi-supervised Segmentation of Aerial Videos with Iterative Label Propagation." Asian Conference on Computer Vision, 2020
- Marcu, Alina, et al. "SafeUAV: learning to estimate depth and safe landing areas for UAVs from synthetic data." European Conference on Computer Vision, 2018

Education

The Faculty of Electronics, Telecommunications and Information Technology [Polytechnic University, Bucharest] - 2006 – 2010

National College Gheorghe Sincai, Bucharest - 2002 – 2006

Abilities

Software & Tech

Development

- Python, with its various ML centric extensions and libraries
- AngularJS, node.js, JavaScript etc.
- Databases, SQL, general full development cycle experience

Foreign Languages

- English – Advanced
- French – Basic

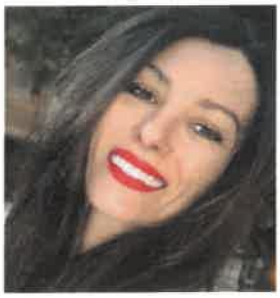
Other

- Quick learner
- Enthusiastic and pleasant, even if more on the quiet side, helpful and flexible, driven by mutual respect, and a firm believer that one should be able to take pride in one's own work

Interests

AI Research, Audio / DSP / Synthesis, Neuro and cognitive science

CRISTINA LAZĂR - Artist creating with Artificial Intelligence



Bucharest, România

Telephone.

Email: _____a;

WEBSITE: https://sites.google.com/view/smile-Project/home

INTRODUCTION

I deeply believe in creating for people, in learning and evolving continuously. That's why I started, a few years ago, to develop my Art in relation to artificial intelligence in the idea of bringing the artistic act closer to human understanding and consciousness. Also, by making Immersive Art that can intelligently interact with people, I invite the viewer to be part of the creative act. In this way, I also invest in the ability of experiential art to open people's minds and hearts. I am honored to be part of the research group at "SpaceTime Vision and Robotics Laboratory", coordinated by Prof. Marius Leordeanu, where we aim to make the world a better place through our work and passion for learning, creation and discovery.

EDUCATION

- Master's studies in "Creative Strategies in Painting", National University of Arts - UNArte, Faculty of Painting, Bucharest, Romania, 2021 - present. Coordinators: Prof. Petru Lucaci and Prof. Marius Leordeanu.
- Bachelor's Thesis: *SmileProject: Deep Immersive Art with Realtime Human AI Interaction*, June 2019. Coordinators: Prof. Petru Lucaci and Prof. Marius Leordeanu.
- Faculty of Painting Graduate, National University of Arts, Bucharest, Teacher Prof. Dr. Petru Lucaci, 2016 – 2019. GPA: 9,49
- Graduated from the Popular Art School "Octav Enigarescu" – Class of Modern Art, Târgoviste, 2004. Coordinator: Prof. Artist Mihai Serbănescu
- Graduated from Ion Heliade Rădulescu High School, majoring in Philology, Târgoviste, 2004, with 1st GPA in the Graduation Class of 2004 (over all specialties).

EXHIBITIONS AND ACTIVITY IN SCIENTIFIC PROJECTS

- **Maia: A Real-time Non-Verbal Chat for Human-AI Interaction** – One of the world's first real-time non-verbal chats with human-AI interaction - Scientific paper under review at Journal Scientific Reports: Engineering Human-Machine Interfaces (Q1) IF: 4.4. Authors: Drd. Alina Marcu, Drd. Dragos Costea, Artist Cristina Lazar and Prof. Univ. Dr. Marius Leordeanu

- **AI Art Project "Between Worlds"** - exhibited at **Miami 3.0 Exhibition** organized by Artbox.Project, during **Art Basel Weeks Miami**, in the prestigious cultural center Wynwood Art District in Miami Beach, Miami, USA, December 2022. Art made with a new AI approach. Authors: Artist Cristina Lazăr and AI Scientists Drd. Dragos Costea and Prof. Marius Leordeanu.

- **SmileProject Deep Immersive Art with Realtime Human AI Interaction** - UNArte Bachelor's Thesis, 2019, in collaboration with Prof. Marius Leordeanu. SmileProject was presented in July 2019 at the Poster Session of the **Eastern European Machine Learning Summer School (EEML)** (https://www.eeml.eu/). I am proud that the project received highly enthusiastic and positive feedback from renowned international professors and researchers such as Prof. Andrew Zisserman (Oxford University), Dr. Rahul Sukthankar, Vice President of Research at Google and Dr. Nabil Belbachir, Research Director at NORCE.

- SmileProject was presented at the following national exhibititions, such as:
  1) **ART Walk Street Festival** (September 2019) (Piața Revoluției, Bucharest). In September, it was selected among the best bachelor's theses in the country at
  2) **Diploma - National Festival of Young Artists (October 2019)**, selected among the best in the Diploma Projects in the country. The exhibition had over 10000 visitors https://diplomafestival.ro/portofolii/proiectulzambet).
  3) **BINAR - Digital Art Festival** (November 2019) as part of the Bucharest edition of the **The Wrong Biennale** (https://institute.ro/digital/binar-2019-5367.html).

PRESENTATIONS

Presentation of my Art-with-AI works in scientific events, international research labs:

- Pitch presentation of our *Maia: A Real-time Non-Verbal Chat for Human-AI Interaction* as part of my Entrepreneurship Start-Up Scholarship for Women Entrepreneurs, organized by the Professional Women's Network, Banca Comerciala Romana, Impact Hub, 2023.
- Presentation of our Art with AI Projects during the visit to Norwegian Research Center (NORCE), Norway, 2022.
- Presentation of our Art with AI Projects at the launch event of the International Center of Excellence in Artificial Intelligence of Politehnica University of Bucharest (UPB), 2022
- Presentation of our Art with AI Projects at TEDX Bucharest, 2018,Polytechnic University of Bucharest.

AWARDS, SCHOLARSHIPS AND ACHIEVEMENTS

- **Entrepreneurship Start-Up Scholarship for Women Entrepreneurs**, organized by the Professional Women's Network, offered by Banca Comerciala Romana (BCR), 2023. Received a Certificate of Appreciation for Extraordinary Results (Ranked 2nd in program)
- **Artworks selected in the permanent collection** of the prestigious Schloss Daghstul - Leibniz Centrum fur Informatik, following participation in the Joint Seminar on Processing of Language and Visual Data for Better Automated Understanding, January 2019
- **National Awards** at the Latin Language Olympiad (2001 – 2004), National graphics awards (2002-2004), National poetry and prose awards (2002 – 2004).
- **National "Junior" Prize of the Romanian Writers' Union,** for the debut volume "Cetatea Cuvintelor", Pro Transilvania (Pub. House), 2004.
- **Diploma of Excellence**, given by the Romanian Ministry of Religions and Culture for all my artistic and literary activity in 2004
- Active member of "Sagetatorul" Cenacle, 2001-2004

SPECIAL GUEST IN CULTURAL AND SCIENTIFIC TV PROGRAMS

- **TVR2 - "The Second Emigration"** featuring my "Nature" paintings collection.
- **A7 TV- guest live on the A7 TV MORNING Show**, featuring my art with AI SmileProject

PUBLISHED WORKS: PAPERS, BOOKS AND ILLUSTRATIONS

- Dragos Costea, Alina Marcu, Cristina Lazar, Marius Leordeanu *Maia: A Real-time Non-Verbal Chat for Human-AI Interaction* (initial version published on Arxiv, 2024), submitted to Scientific Reports: Engineering Human-Machine Interfaces (Q1) IF: 4.4
- Book: Cristina Lazar, "Cetatea Cuvintelor", Pro-Transilvania Publishing House, March 2004.
- Artwork "The Parable of the Blind Men" created for the scientific book: M. Leordeanu, Unsupervised Learning in Space and Time: A Modern Approach for Computer Vision using Graph-based Techniques and Deep Neural Networks, 300 pages, Springer, May 2020.
- Publication of my visual art work **"Her eyes"**, especially created for the scientific article: Leordeanu, Marius, and Rahul Sukthankar. "Towards a visual story network using multiple views for object recognition at different levels of spatiotemporal context." *The Physics of the Mind and Brain Disorders: Integrated Neural Circuits Supporting the Emergence of Mind* (2017): 573-610.
- Book cover: M. Leordeanu, "Ma numesc albastru", 178 pages, ed. Green Valley, 2016.
- Book cover and illustrations for: M. Leordeanu, "Povestea unui cuvant", 76 pages, Papirus Media publishing house, 2013.

Ioana CROITORU

linkedin.com/in/ioana-croitoru

Number of citations (Google Scholar): **280**

EDUCATION

School of Advanced Studies of the Romanian Academy — Bucharest, Romania
PhD in Computer Vision, graduated with the highest honors, supervisor Marius Leordeanu — *Nov. 2016 – April 2022*

University "Politehnica" of Bucharest — Bucharest, Romania
Masters Degree in Artificial Intelligence — *Oct. 2014 – Jul. 2016*

University "Politehnica" of Bucharest — Bucharest, Romania
Bachelor Degree in Computer Science and Engineering — *Oct. 2010 – Jul. 2014*

EXPERIENCE

Teaching Assistant — October 2013 – Present
University "Politehnica" of Bucharest — *Bucharest*

- Teaching regular expressions, finite automata, context-free grammars, pushdown automata and Turing machines to third year students for the course of Formal Languages and Automata

Research Engineer — March 2023 – Present
V7 Labs — *London/Remote*

- Developing and evaluating foundation models (SAM, GPT4) for label automation, focusing on prompt engineering, AI pipeline optimization, and model fine-tuning
- Technologies utilized include Python, Pytorch, AWS, Docker

Co-Founder — March 2023 – Present
Filtir — *Cambridge/Remote*

- Creating an AI-driven fact-checking platform specialised in AI-generated content
- Expertise in evaluating and fine-tuning LLMs such as LLaMA, Mistral, GPT-4, Claude, and Gemini

Research Scientist Intern — May 2022 – December 2022
Adobe — *San Jose/Remote*

- Focused on moment detection from long tutorial videos using natural language queries under the supervision of Trung Bui and Hailin Jin
- Utilized GPT-3 and Hugging Face Transformer libraries, employing data filtering, unsupervised learning, and data processing

Research Scientist Collaborator — August 2020 – December 2022
University of Oxford — *Remote*

- Working on topics at the intersection between natural language processing and video processing, such as text-video retrieval (retrieve a video that best describes the input query in natural language) and moment detection

Research Scientist — March 2020 – August 2020
University of Oxford — *Oxford*

- Working on text-video retrieval at the Visual Geometry Group (VGG) under the supervision of Andrew Zisserman, Samuel Albanie and Yang Liu

Research Assistant September 2019 – March 2020

University "Politehnica" of Bucharest *Bucharest*

- Working on unsupervised object segmentation and video to text translation
- . Analysing how different annotation schemes will impact the results on video captioning

Research Assistant April 2016 – July 2019

Institute of Mathematics of the Romanian Academy *Bucharest*

- Working on unsupervised object segmentation
- Making use of the *teacher-student* paradigm to transfer knowledge from an unsupervised teacher that segments objects in videos to a student that is able to segment objects in single images

Software Engineer Intern June 2015 – Sept 2015

Facebook *Menlo Park*

- Improve the notifications on Facebook by testing how different features added to a machine learning algorithm perform

Software Engineer Intern June 2013 – Sept 2013

Facebook *Menlo Park*

- Developing an internal testing framework for Search Quality and Ranking team

RELEVANT PROJECTS AND ACTIVITIES

Reviewer 2019 – Present

- Outstanding reviewer at CVPR 2023
- Reviewer for Transactions on Multimedia Journal, CVPR, ECCV, ICCV and other conferences

Speaker 2018 – Present

- **May 2022 – Bucharest Deep Learning Group** – Talked about leveraging additional information in order to boost the performance for text-video retrieval methods
- **June 2018 – Conference on Recent Advances in Artificial Intelligence (RAAI)** – Talked about unsupervised learning of foreground object detection

Won the Condensed Movies Challenge October 2021

- Won the text-video retrieval Condensed Movies Challenge
- Presented at the Workshop on Closing the Loop Between Vision and Language, held in conjunction with ICCV 2021

Best poster award June 2019

- Won the best poster award for *Unsupervised learning of foreground object segmentation* at Eastern European Machine Learning Summer School (EEML)

Volunteer and Teaching Assistant June 2019

- Helping in organizing the 2019 Eastern European Machine Learning Summer School (EEML)

- Guided participants on solving some introductory Machine Learning problems

Teaching Assistant at the International Summer School on Imaging with Medical Applications (SSIMA) July 2018

- Helping organizing and presenting a workshop focused on Deep Neural Networks for Medical Image Recognition in Tensorflow

Volunteer June 2017

- Helping organizing the 2017 International Conference on Multimedia Retrieval (ICMR)

PUBLICATIONS

Moment Detection in Long Tutorial Videos 2023

I. Croitoru, S.V. Bogolin, S.Albanie, Y.Liu, Z. Wang, S. Yoon, F. Dernoncourt, H. Jin, T. Bui

- Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), Paris 2023

Flexible visual prompts for in-context learning in computer vision 2023

T. Foster, I. Croitoru, R. Dorfman, C. Edlund, T. Varsavsky, J. Almazán

- NeurIPS R0-FoMo Workshop, New Orleans 2023

Cross Modal Retrieval with Querybank Normalisation 2022

S.V. Bogolin, I. Croitoru, H. Jin, Y. Liu, S. Albanie

- Proceedings of the IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), 2022
- Shared first author

TeachText: CrossModal Generalized Distillation for Text-Video Retrieval 2021

I. Croitoru, S.V. Bogolin, Y. Liu, S. Albanie, M. Leordeanu, H. Jin, A. Zisserman

- Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), virtual 2021

A hierarchical approach to vision based language generation:... 2020

S.V. Bogolin, I. Croitoru, M. Leordeanu

- Proceedings of The 28th International Conference on Computational Linguistics (COLING), 2020

Unsupervised learning of foreground object segmentation 2019

I. Croitoru, S.V. Bogolin, M. Leordeanu

- International Journal of Computer Vision (IJCV), volume 127, number 9, pages 1279-1302, Sept 2019
- Shared first author

Unsupervised learning from video to detect foreground objects in single images 2017

I. Croitoru, S.V. Bogolin, M. Leordeanu,

- Proceedings of The IEEE International Conference on Computer Vision (ICCV) 2017

TECHNICAL SKILLS

Languages: Python, Java, SQL (Postgres), HTML

Frameworks: PyTorch, Tensorflow, Django

Developer Tools: Git, Docker, AWS, Google Cloud Platform, Vim, VS Code, Metabase

Libraries: pandas, NumPy, Matplotlib, scipy, nltk

Vlad BOGOLIN

linkedin.com/in/vladbogo/

Number of citations (Google Scholar): **285**

EDUCATION

Cambridge "Judge" Business School, University of Cambridge — Cambridge, UK
Accelerate Cambridge — *Sept. 2023 – Dec. 2023*

School of Advanced Studies of the Romanian Academy — Bucharest, Romania
PhD in Computer Vision, supervisor Marius Leordeanu — *Nov. 2016 – April 2022*

University "Politehnica" of Bucharest — Bucharest, Romania
Masters Degree in Artificial Intelligence, GPA 9.26 out of 10 — *Oct. 2014 – Jul. 2016*

University "Politehnica" of Bucharest — Bucharest, Romania
Bachelor Degree in Computer Science and Engineering, GPA 9.66 out of 10 — *Oct. 2010 – Jul. 2014*

EXPERIENCE

Senior Software Engineer — March 2022 – Present
MariaDB Foundation — *Remote*

- Lead development of the MariaDB automatic testing framework https://buildbot.mariadb.org, focusing on automated testing and package creation for MariaDB Server releases.
- Emphasized efficiency in the project, ensuring rapid test execution to minimize developer friction.
- Implemented the framework using Python, Docker, and Ansible.

Software Engineer — *Oct 2019 - March 2022*

- Setup the infrastructure and work on adding more builders.

Co-Founder and CEO — March 2023 – Present
Filtir — *Cambridge, UK/Remote*

- Fact-checking AI generated content.
- Expertise in evaluating and fine-tuning LLMs such as LLaMA, Mistral, GPT-4, Claude, and Gemini.

Research Scientist Collaborator — Aug. 2010 – Dec. 2022
Visual Geometry Group, University of Oxford — *Remote*

- Working on improving and understanding the limitations of text-video retrieval methods along with proposing methods to mitigate them.

Research Scientist — March 2020 – August 2020
Visual Geometry Group, University of Oxford — *Oxford, UK*

- Research on text-video retrieval under the supervision of Andrew Zisserman.
- We developed a system that achieves state of the art results on several benchmarks by leveraging the usage of multiple text-embeddings.

Research Assistant — Sept. 2019 – March 2020
University "Politehnica" of Bucharest — *Bucharest, Romania*

- Research on video to text translation, mainly testing if a dual annotation scheme with a whole level video description and but also with small, well defined in space and time annotated actions, would improve the performance of a video captioning system.

Teaching assistant Oct. 2017 – Oct. 2019

University "Politehnica" of Bucharest *Bucharest, Romania*

- Preparing and presenting the materials for the practical sessions of the Artificial Intelligence and Machine Learning courses.

Research Assistant April 2016 – July 2019

Institute of Mathematics of the Romanian Academy *Bucharest, Romania*

- Research on video to text translation and object segmentation and detection in order to describe a complex human activity.
- A complex human activity captures interactions with objects and interactions between humans during a longer amount of time.

Software Engineer Intern June 2015 – Sept. 2015

Facebook Inc. *Menlo Park, CA, USA*

- Improving an internal tool that allows making experiments on translations.
- Add the ability to perform A/B tests in order to find the best translation.

Software Engineer Intern Feb. 2015 – March 2015

Google *Lübeck, Germany*

- Improving an existing portrait editing software by adding the possibility to edit the lips.

PUBLICATIONS

Moment Detection in Long Tutorial Videos 2023

I. Croitoru, S.V. Bogolin, S.Albanie, Y.Liu, Z. Wang, S. Yoon, F. Dernoncourt, H. Jin, T. Bui

- Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), Paris 2023

Cross Modal Retrieval with Querybank Normalisation 2022

S.V. Bogolin, I. Croitoru, H. Jin, Y. Liu, S. Albanie

- Proceedings of the IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR), 2022

TeachText: CrossModal Generalized Distillation for Text-Video Retrieval 2021

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- Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV), virtual 2021
- Shared first author

A hierarchical approach to vision based language generation:... 2020

S.V. Bogolin, I. Croitoru, M. Leordeanu

- Proceedings of The 28th International Conference on Computational Linguistics (COLING), 2020

Unsupervised learning of foreground object segmentation 2019

I. Croitoru, S.V. Bogolin, M. Leordeanu

- International Journal of Computer Vision (IJCV), volume 127, number 9, pages 1279-1302, Sept 2019

- Shared first author

Mining for meaning: from vision to language through multiple networks consensus 2018

I. Duta, A.L. Nicolicioiu, S.V. Bogolin, M. Leordeanu

- Proceedings of The British Machine Vision Conference (BMVC) 2018
- Shared first author

Unsupervised learning from video to detect foreground objects in single images 2017

I. Croitoru, S.V. Bogolin, M. Leordeanu,

- Proceedings of The IEEE International Conference on Computer Vision (ICCV) 2017

PRIZES AND OTHER ACTIVITIES

Reviewer for CVPR, ECCV, ICCV and other major conferences	2019 – present
Outstanding reviewer award	BMVC 2020, BMVC 2021, NeurIPS 2022
Winner Condensed Movies Challenge	ICCV 2021
Best poster award	EEML (Eastern European Machine Learning Summer School) 2019
Volunteer	International Conference on Multimedia Retrieval (ICMR) 2017
Bronze medal	National Olympiad in Informatics 2010

TECHNICAL SKILLS

Languages: Python, Typescript, JavaScript, SQL, HTML/CSS

Frameworks: PyTorch, Tensorflow, Django, Node.js, Flask

Developer Tools: Git, Docker, GitHub Actions, Ansible, AWS, Google Cloud Platform, Buildbot, Vim, VS Code

Libraries: NumPy, Matplotlib, OpenCV, scipy, nltk

Elena BURCEANU

Total number of citations: 110

Google Scholar: https://scholar.google.com/citations?user=bL34yDkAAAAJ
Website: ilarele.github.io

EDUCATION

Oct. 2016–2021 **PhD student, Faculty of Mathematics and Computer Science, University of Bucharest, Romania** working on Object consistency in Video for Segmentation and Tracking tasks, under Marius Leordeanu and Gheorghe Stefanescu supervision

2011–2013 **MSc in Parallel and Distributed Computer Systems, Faculty of Automatic Control and Computer Science, Politehnica University of Bucharest**, 9.67/10

2007–2011 **BSc in Computer Science and Engineering, Faculty of Automatic Control and Computer Science, Politehnica University of Bucharest**, 9.32/10, with the main interest in Operating Systems, Compilers Design, and Artificial Intelligence related courses

2004–2007 **Mircea cel Batran National College, Constanta, Romania**
Math and Physics contests and olympiads, national, and international phases

INTERNSHIPS

summer 2012 **Internship Student at Inria, Rennes, France**
I build on top of Blobseer (a file system for large scale distributed storage services) a scalable layer for context-aware data-intensive applications. It enables mobility and provisioning of data according to user location in real-time, discovery and registration of data sources, efficient data access at different granularities, and support for complex queries.

summer 2011 **Google Summer of Code Student at OpenIntents.org**
My project involved adding support for more sensors in the Sensor Simulator for Android, that simulates sensor input without the need of a physical android device (at the time, there were few devices with advanced sensor capabilities and the simulator was intensively used by developers).

PROFESSIONAL EXPERIENCE

Sep. 2014– **Machine Learning Researcher, Team Lead**
Our team reaches for top research and conferences, making a name for Bitdefender and Romania on the world map of AI. We give machine learning training and advice inside the company. I work in unsupervised video understanding, specifically on single object tracking and segmentation, which is also my PhD subject and captures my full focus.

Dec. 2013–Jul.2014 *Warbles radio startup* - an app for recommending custom radio stations based on the user history and the current program.

Dec. 2013–Jul.2014 *IUR startup* - a service for venues that allows them to acquire/profile/loyalize customers and clients to fast order from a mobile app instead of the waiter, based on bluetooth beacons for indoor localization, a recent technology for those days.

2011–2014 **iOS and OSX Prototyping Developer, Bitdefender, Romania**
Clueful: built a system that detects and analyzes your installed apps both statically and dynamically, to find sensitive data (privacy related) used by the app.
Smart Battery: complex machine learning heuristics for determining which apps are using more battery, based on each user behaviour (this was particularly hard for iOS, due to major restrictions that Apple imposes on gathering OS, user, and apps information through code). Other proof of concept security-related apps: VPN, MDM.
Antivirus for Mac: contributed to OSX solution from Bitdefender, building a scanning cache system (based on OSX file system particularities), and addressing performance issues.

2009–2011 **Android Developer, Freelancer**
I have worked remotely on prototyping very original ideas, as Android was in its very early ages (starting with the 1.5 API version). I worked on projects from Japan, Sweden, Ireland, France.

FOUNDED PROJECTS

UEFISCDI 2020-2022	Principal Investigator, Author Identification, using Web and DarkWeb Text Correlation, for increasing Cybersecurity, Bitdefender and University of Bucharest (Marius Popescu)
UEFISCDI 2016-2018	Principal Investigator, Querying Databases in Natural Language Using Deep Learning, Bitdefender and Politehnica University of Bucharest (Traian Rebedea)

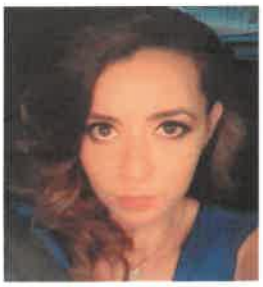
AWARDS

2017-2020	PhD Scholarship from AUF (Agence Universitaire de la Francophonie)
2018	Best poster: Transylvanian Machine Learning Summer School
2002–2007	Awards at various regional, national and international Mathematics and Physics competitions
2004–2007	Participation at National Mathematical Olympiad in all high-school years (with 3 bronze medals awards)
2003	Mention at National Physics Olympiad
2003	Valedictorian at Theoretical High-School "Ovidius", Constanta, Romania, special class for middle school

TALKS

Jan. 2020	Video Object Segmentation over Space-time, Bitdefender Tech-Days
Jan. 2020	Teaching *Deep Learning for Product Managers*, Bitdefender
May.–Aug. 2019	Teaching *Deep Learning Course for engineers*, Bitdefender
2019/2020/2021	Teaching *Deep Learning Course*, University of Bucharest
Feb. 2019	*Video Understanding in Bitdefender Computer Vision Lab*, Timisoara Machine Learning Workshop 2019, Romania
Jun. 2017	*Learning a Robust Society of Tracking Parts*, RAAI 2017 workshop, University of Bucharest, Romania
Aug. 2016–present	Presentations on several themes: *adversarial examples, problems that arise in neural networks non-convex optimization, unsupervised tracking, current tracking solutions, and datasets*, at Computer Vision Seminar, IMAR
Oct. 2015–present	Presentations on several themes: *AlphaGo, the landscape of the cost function, tracking*, at Bucharest Deep Learning Meetup
summer 2010	Android trainer at ROSEdu Summer of Code

Emanuela HALLER
Senior Applied Scientist, UiPath



Google Scholar:
https://scholar.google.com/citations?user=KK1d87cAAAAJ&hl=en&oi=ao
Number of citations: 154

Interests

Domains Artificial Intelligence, Computer Vision, Deep/Machine Learning

Research Unsupervised/Self-Supervised Learning, Anomaly Detection, Robustness to Distribution Shifts, DeepFake Detection

Personal teddy bears, baking, logic puzzles, travelling, reading

Education

2016-2022 **PhD**, University Politehnica of Bucharest, Romania
- *Summa cum laude*
- Specialization: *Computer Science and Information Technology*
- Thesis: *Unsupervised Visual Learning by Exploiting the Spatio-Temporal Consistency of Highly Probably Positive Features*
- Advisors: Marius Leordeanu and Adina Magda Florea
- PhD Defense Committee: Rahul Sukthankar - Google Research, Josef Sivic - CIIRC CTU, Marius Leordeanu - UPB, Adina Magda Florea - UPB, Irina Mocanu - UPB, Florin Pop - UPB

2013-2015 **MSc**, University Politehnica of Bucharest, Romania
- GPA: *9.90/10*
- Specialization: *Artificial Intelligence*
- Thesis: *Intelligent Object Tracking*
- Advisor: Irina Mocanu

2009-2013 **BSc** - Engineer's Degree, University Politehnica of Bucharest, Romania
- GPA: *9.62/10* (ranked 8^{th} out of 164 students)
- Specialization: *Computer Science and Information Technology*
- Thesis: *Human Activity Recognition Based on Multiple Kinects*
- Advisor: Irina Mocanu

Professional experience - Fundamental Research & Industry

2024-present **Senior Applied Scientist,** UiPath
- Part of the Computer Vision team, working on the challenging problem of adapting machine learning models to continuous data distribution shifts.

2018-2023 **Senior Machine Learning Researcher**, Bitdefender
- Part of the AI and Crypto Unit at Bitdefender
- Working on various projects regarding: anomaly detection, robustness to distribution shifts, deep fake detection, applying machine learning algorithms over encrypted data and the problem of unsupervised learning from visual data

2016-2018 **Machine Learning Researcher**, Institute of Mathematics of the Romanian Academy
- Working on the problem of unsupervised learning from visual data

2014-2018 **Research and Development Engineer**, FotoNation, Xperi Corporation
- Part of the team working on the Driver Monitoring System, developing Computer Vision systems on the infrared spectrum, for tracking drivers' head and facial movements to raise alerts and take actions in potentially dangerous situations when the driver is not paying attention to the road

OTHER SCIENTIFIC ACTIVITIES

2019–	Reviewer at top AI conferences: ICML, NeurIPS, CVPR, ICCV, ICLR, AAAI
Jul. 2020	Teaching Assistant at Virtual EEML2020 Summer School
Jul. 2019	*EEML2019 Summer School* - one week, 250 students and top researchers, eeml.eu - local co-organizers: me, Traian Rebedea, Marius Leordeanu - organizers: Viorica Patraucean, Razvan Pascanu, Doina Precup
Oct. 2015–	Bucharest Deep Learning Meetup - organizers: me, Traian Rebedea, Tudor Berariu
Jul. 2018–	Reading Group, IMAR and Bitdefender
Jul. 2017–2019	Statistics/Linear Algebra Seminar, IMAR

2019-present **Conference and Journal Reviewer**

- International Conference on Computer Vision - **ICCV** - 2019, 2021
- Conference on Computer Vision and Pattern Recognition - **CVPR** - 2020, 2021, 2022
- Conference on Artificial Intelligence - **AAAI** - 2020, 2021
- European Conference on Computer Vision - **ECCV** - 2020
- Winter Conference on Applications of Computer Vision - **WACV** - 2021
- International Conference on Learning Representations - **ICLR** - 2024
- IEEE Transactions on Pattern Analysis and Machine Intelligence - **TPAMI**

Professional experience - Teaching

2021-2022 **Curriculum development/Lecturer**, (pyML.ro)

- Involved in developing materials for a high school course on machine learning that was introduced in the national curriculum. I've also held trainings and presentations for both high school teachers and students.

2020-2023 **Lecturer/Tutor**, University of Bucharest

- Course: *Deep Learning - BSc*

2020-2021 **Lecturer**, University of Bucharest

- Course: *Special topics in Security and Applied Logic - Deep Learning - MSc*

2020 **Lecturer**, Bitdefender

- Course: *DeepBit4PM Training* - internal deep learning course for product managers

2019 **Tutor**, Bitdefender

- Course: *DeepBit Training* - internal deep learning course for engineers

2019 **Teaching Assistant**, EEML Summer School

2014-2016 **Teaching Assistant**, University Politehnica of Bucharest

- Course: *Data Structures - BSc*

Publications

ICCVW 2023 Ştefan Smeu*, Elena Burceanu*, **Emanuela Haller***, Andrei Nicolicioiu. *"Environment-biased Feature Ranking for Novelty Detection Robustness"*. IEEE International Conference on Computer Vision - ICCV 2023 Workshop on Out Of Distribution Generalization in Computer Vision (* equal contribution)

ICCVW 2023 Alina Marcu, Mihai Pirvu, Dragos Costea, **Emanuela Haller**, Emil Slusanschi, Nabil Belbachir, Rahul Sukthankar, Marius Leordeanu. *"Self-supervised Hypergraphs for Learning Multiple World Representations"*. IEEE International Conference on Computer Vision - ICCV 2023 Workshop on Representation Learning with Very Limited Images

NeurIPS 2022 Marius Dragoi*, Elena Burceanu*, **Emanuela Haller***, Andrei Manolache, Florin Brad. *"AnoShift:A Distribution Shift Benchmark for Unsupervised Anomaly Detection"*. The thirty-sixth Conference on Neural Information Processing - NeurIPS 2022 Datasets and Benchmarks Track (* equal contribution)

NeurIPSW 2022 Stefan Smeu*, Elena Burceanu*, Andrei Nicolicioiu, **Emanuela Haller**. *"Env-Aware Anomaly Detection: Ignore Style Changes, Stay True to Content!"*. The thirty-sixth Conference on Neural Information Processing - NeurIPS 2022 Workshop on Distribution Shifts (DistShift) (*equal contribution)

TPAMI 2022 **Emanuela Haller**, Adina Magda Florea, Marius Leordeanu."*Iterative Knowledge Exchange Between Deep Learning and Space-Time Spectral Clustering for Unsupervised Segmentation in Videos*". IEEE Transactions on Pattern Analysis and Machine Intelligence, Volume 44, Issue 11, 2022

BMVC **Emanuela Haller***, Elena Burceanu*, Marius Leordeanu."*Self-Supervised Learning in Multi-*

2021 *Task Graphs through Iterative Consensus Shift*". BMVA British Machine Vision Conference - BMVC 2021 (* equal contribution)

ICCV 2017 **Emanuela Haller** and Marius Leordeanu."*Unsupervised object segmentation in video by efficient selection of highly probable positive features*". IEEE International Conference on Computer Vision - ICCV 2017

EvAAL 2013 **Emanuela Haller**, Georgiana Scarlat, Irina Mocanu and Mihai Trascau. "*Human Activity Recognition Based on Multiple Kinects*". Springer Evaluating AAL Systems Through Competitive Benchmarking - EvAAL 2013

CSCS 2013 **Emanuela Haller** and Traian Rebedea. "*Designing a Chat-bot that Simulates an Historical Figure*". IEEE International Conference on Control Systems and Computer Science - CSCS 2013

Patents

2021 Elena Burceanu, Madalina Bolboceanu, **Emanuela Haller**, Georgiana Miruna Rosca, Bogdan Constantin Cebere, Radu Titiu. "*Privacy-Preserving Image Distribution*". US11768957B2, Filed: 07.05.2021, Granted: 26.09.2023

2021 Elena Burceanu, Madalina Bolboceanu, **Emanuela Haller**, Georgiana Miruna Rosca, Bogdan Constantin Cebere, Radu Titiu. "*Privacy-Preserving Image Distribution*". US11604893B2, Filed: 07.05.2021, Granted: 14.03.2023

2021 Elena Burceanu, Madalina Bolboceanu, **Emanuela Haller**, Georgiana Miruna Rosca, Bogdan Constantin Cebere, Radu Titiu."*Image Distribution Using Composite Re-Encrypted Images*". US11599669B2, Filed: 07.05.2021, Granted: 07.03.2023

2020 Bogdan Constantin Cebere, Elena Burceanu, Madalina Bolboceanu, **Emanuela Haller**, Georgiana Miruna Rosca, Radu Titiu."*Privacy-Preserving Domain Name Service (DNS)*". US11750363B2, Filed: 11.04.2020, Granted: 05.09.2023

2018 Florin Nanu, Stefan Petrescu, Florin Oprea and **Emanuela Haller**. "*Human monitoring system incorporating calibration methodology*". US10740633B2, Filed: 10.02.2018, Granted: 08.11.2020

2018 Mihai Ciuc, Stefan Petrescu, **Emanuela Haller**, Florin Oprea, Alexandru Nicolaescu, Florin Nanu and Iulian Palade."*Facial features tracker with advanced training for natural rendering of human faces in real-time*". US10706577B2, Filed: 03.06.2018, Granted: 07.07.2020

2022 Elena Burceanu, **Emanuela Haller**, Marius Leordeanu, Razvan Prejbeanu, Constantin Cernat. "*Computer Security Systems and Methods Using Self-Supervised Consensus-Building Machine Learning*". US Patent Application No. 17/656,644, Filed: 26.03.2022

Skills Overview

Programming Experience in Python and PyTorch framework; Familiar with C

Teaching Psycho-Pedagogical Module

Languages **English** - Fluent; **Romanian** - Native

Honors and Awards

2022 **Best Poster Award** - Romanian AI Days 2022

- Paper: *AnoShift:A Distribution Shift Benchmark for Unsupervised Anomaly Detection*
  - *Presenter: Drăgoi Marius*
- Paper: *Env-Aware Anomaly Detection: Ignore Style Changes, Stay True to Content!*
  - *Presenter: Smeu Ștefan*

2021 **Best Poster Award** - Romanian AI Days 2021
- Paper: *Iterative Knowledge Exchange Between Deep Learning and Space-Time Spectral Clustering for Unsupervised Segmentation in Videos*
  - *Presenter: Haller Emanuela*

2013 **First Prize** - Scientific Communication Session - Artificial Intelligence
- Paper: *Intelligent Object Tracking*

2013 **Second Prize** - Scientific Communications Session - Artificial Intelligence
- Paper: *Human Activity Recognition Base on Multiple Kinects*

2012 **Third Prize** - AI Competition - CASIA
- Paper: *Chat-bot that Simulates an Historical Figure*

2008 **Silver Medal & Honorable Mention** (20^{th} place) - Romanian National Olympiad in Informatics

2006 **Honorable Mention** (5^{th} place) - Romanian National Olympiad in Informatics

Oana MITRUT (Bălan)

Number of citations: **901**
h-index: **14**, i-index: **25**

Date of birth: 19.05.1988

Google Scholar Profile: https://scholar.google.ro/citations?user=-yP2NgEAAAAJ&hl=en

Professional experience

Associate professor (1.10.2020 - present)

Lecturer (1.10.2017 – 1.10.2020)

Teaching Assistant (1.10.2015 – 1.10.2017)

National University of Science and Technology POLITEHNICA of Bucharest, Splaiul Independței 313, sector 6, 060034 Bucharest, Romania

Activities - Courses and laboratories in the subjects: Computer Programming, Object Oriented Programming, Data Structures, Programming Languages, Software Engineering, scientific research activities, participation in admissions committees, diploma dissertations, master dissertations

Principal Investigator

SAFE-VR contract no. 18/25.09.2017 UPB - System for ameliorating phobias through Virtual Reality Exposure, GEX UPB grant. Funding: 22,000 RON, during 2017-2018

Researcher

PhoVR—Immersive Treatment of Phobias through Adaptive Virtual Reality and Biofeedback - 43PTE/2020, during 1.06.2020 – 1.05. 2021

SAFE-VR "Excellence Research Grants" Program scholarship, UPB CRC Research Grant 2017. National University of Science and Technology POLITEHNICA of Bucharest, Faculty of Automatic Control and Computers, during the period 1.05.2018 - 1.05 .2021
Mentor: Prof. Marius Leordeanu

Sound of Vision (Natural sense of vision through acoustics and haptics), Horizon 2020, H2020-PHC-2014, project code 643636, during 2015-2017

TRAVEE (Virtual Therapist with Augmented Feedback for Neuromotor Recovery), PNCDII-Partneriate, PN-II-PT-PCCA-2013-4-1580, 2015-2018
HAI-OPS - Hospital Acquired Infection and Outbreak Prevention System, Eurostars applied research, ID. E!9831 - HAI-OPS, 2015 – 2018

Project: Development of entrepreneurial skills of doctoral students and postdoctoral students - key to career success (A-Succes), National University of Science and Technology POLITEHNICA of Bucharest

Education and Training

2015 - PhD in Computers and Information Technology
National University of Science and Technology POLITEHNICA of Bucharest, Faculty of Automatic Control and Computers, supervisor Prof. Dr. Ing. Florica Moldoveanu
Thesis title: Contributions to 3D Sound-based Space Perception and Navigation of Visually Impaired People, Through Multimodal Feedback Training

POSDRU InnoRESEARCH scholarship - POSDRU/159/1.5/S/132395, 1.04.2014 - 1.10.2015

Research internship at Széchenyi István University in Győr, Hungary

Participation in the Doctoral Consortium section at the international conferences NordiCHI 2014, International Conference on Auditory Display (ICAD) 2015, Interfaces and Human Computer Interaction (2015)

Best Paper Award for PhD Students, The 18th International Conference on System Theory, Control and Computing (ICSTCC), Sinaia, Romania, October 17-19, 2014

Master's Degree in Advanced Information and Processing Techniques
Petroleum-Gas University Ploieşti, Faculty of Computer Science, 2012

Bachelor's Degree
Petroleum-Gas University Ploieşti, Faculty of Computer Science, 2010

Graduate Diploma - CCNA Module 1, Cisco Academy. 2008

Ion-Luca Caragiale National College, Ploieşti, bilingual English mathematics-informatics, 2007

Scientific activity

- Author of 3 books and 1 book chapter
- 20 articles published in journals, of which 7 articles published in Q1/Q2 journals
- 48 articles published in international conferences, of which 4 articles at conferences in the Core A category at the time of publication

Curriculum vitae Europass

Personal Information

Name	**Sluşanschi, Emil-Ioan**
Address	
Phone	
Fax	
E-mail	
Nationality	Romanian
Date of Birth	11 June 1976
Sex	Male

Workplace

Faculty for Automatic Control and Computers – Professor, Head of Computer Science and Engineering Department

Professional experience

Period	October 2000 - present.
Position	Professor (Assistant Professor 2000-2007, Lecturer 2007-2009, Associate Professor 2009-2014)
Name and address of employer	Faculty for Automatic Control and Computers – University Politehnica of Bucharest – Head of Department of Computer Science and Engineering Splaiul Independentei 313, Bucuresti, 060042, Sector 6, Romania Phone: +4021-402 91 00 ; +4021-318 10 22 / 23 / 24 / 25
Activity	Research and Education , PhD Advisor since 2015
Period	October 2001 – October 2005
Position	Scientific researcher
Name and address of employer	Institute for Scientific Computing RWTH Aachen University D-52056 Aachen, Germany Phone: ++49-(0)241-80-28902 Fax: ++49-(0)241-80-22241
Activity	Research and Education

Education

Period	October 2001 – October 2005
Degree	Doctor in Computer Science (Dr. rer. Nat.)
Studies / Professional skills	High performance scientific computing, compilers, automatic semantic transformations of computer codes, numerical algorithms, multi-core and multi-processor systems.
Name and type of the education establishment	RWTH-Aachen University, Aachen, Germany
National / international classification	ISCED 8

Period	2000 – 2001
Degree	Master in Computer Science
Studies / Professional skills	Advanced computer architectures and computing systems
Name and type of the education establishment	Faculty for Automatic Control and Computers – University Politehnica of Bucharest – Department of Computer Science and Engineering
National / international classification	ISCED 7
Period	1995 – 2000
Degree	Bachelor in Computer Science
Studies / Professional skills	Mathematics, physics, electronics, data structures and algorithms, operating systems, computer networks, compilers, computer systems architecture, parallel programming.
Name and type of the education establishment	Faculty for Automatic Control and Computers – University Politehnica of Bucharest – Department of Computer Science and Engineering
National / international classification	ISCED 6
Period	1991 – 1995
Degree	Baccalaureate Mathematics and informatics
Name and type of the education establishment	National Informatics High-School „Tudor Vianu" of Bucharest
National / international classification	ISCED 4

Other specializations

- Institut für Informatik, Technische Universität München, Germany, February 2002: „Numerical Methods for solving engineering problems in Computational Fluid Dynamics"
- RWTH-Aachen University, Germania, March 2002 and March 2006: „SUN HPC Technologies – MPI and OpenMP Programming".
- University Politehnica of Bucharest, Romania, June 2006: „Intel Compiler Suite and VTune – Profiling and application performance optimization".
- Cell/B.E. and Deep Computing Division, IBM TJ Watson Labs, New York, USA, September 2008: „IBM Cell-based application development"
- Advanced Technology & Center for advanced Studies in Cairo, Egipt, November 2009 / January 2010: „IBM Blue Gene /L Architecture and Programming"
- Intel Software College, Bucuresti, Romania, December 2009: „Intel Multicore Programming"
- NVidia Corporation, Bucuresti, Romania, June 2012: „NVidia GP-GPU & CUDA Programming"

Research projects and grants

- ELIAS: European Lighthouse of AI for Sustainability, HORIZON-CL4-2022-HUMAN-02-02.
- Spacetime Vision – Towards Unsupervised Learning in the 4D World. EEA and Norway Grant 2019-2022: EEA-RO-2018-0496 (Member in the team)
- HyperVision: Unsupervised Visual Learning through Intelligent Equilibrium in Hypergraphs of Neural Networks. UEFISCDI Grant PN-III-P4-ID-PCE-2020, 2021-2023. (Member in the team).
- UNICORE – A Common Code Base and Toolkit for Deployment of Applications to Secure and Reliable Virtual Execution Environments (Project director – 2019-2021), EU H2020 RIA, Objective ICT-2018-2, ID: 825377.
- The Classifier Graph: A Recursive Multiclass Network for Deep Category Recognition in Images and Video. UEFISCDI ERC-like Grant 2016-2018: ERC-2016. (Member in the team).
- LEXNET – Low EMF Exposure Future Networks (Project director – 2012-2015). EU FP7 IP, Objective ICT-2011-8, ID: 318273.
- TWISNet – Trustworthy Wireless Industrial Sensor Networks (Project director – 2010-2013), EU FP7 STREP, Objective ICT-2009.1.4, ID: 258280.
- A Framework for Multi-Scale Weather Forecasting and Environmental Early Warning (Project director – 2009), Financing: IBM Open Collaborative Research Project.

Additional Information

Memberships in Professional Associations:

- ACM – Association for Computing Machinery
- IEEE – Institute of Electrical and Electronics Engineers
- ARCAS – Romanian Assoc. for Promoting Advanced Computational Methods in R&D.
- A&C – Asociatia Automatica si Calculatoare.

30.01.2024

Prof. Dr. Eng. Habil. Emil-Ioan Sluşanschi

Bogdan ALEXE

Google Profile: https://scholar.google.com/citations?user=t5JG-ScAAAAJ&hl=en&oi=ao
Number of citations: **4204**

Bucharest, Romania

EDUCATION

2013 PhD in Computer Vision, ETH Zurich, Switzerland, defended on 22nd May 2013. PhD thesis (" Objectness and its use for visual learning") in the field of generic object detection.

2007 Master in Applied Informatics, Faculty of Mathematics and Computer Science, University of Bucharest, Romania.

CURRENT AND PREVIOUS POSITIONS

2021-2023 Co-head of the Departament of Computer Science, University of Bucharest

2016-2020 Vice Dean, Faculty of Mathematics and Computer Science, University of Bucharest
Responsible for the scientific research, international relations.

2016-2023 Senior researcher at SecurifAI
Develop algorithms for abnormal event detection in videos, object recognition.

2015-now Associate professor, Faculty of Mathematics and Computer Science, Univ. of Bucharest.
Teaching courses, seminars and laboratory classes on Programming, Artificial Intelligence, Computer Vision, Virtual Reality, Advanced Machine Learning.
Research in the fields of Computer Vision, Machine Learning.

2007 Teaching assistant, Faculty of Mathematics and Computer Science, Univ. of Bucharest.
Teaching laboratory classes for the Artificial Intelligence course.

SUPERVISION OF GRADUATE STUDENTS

2022 1 Master Student (Armand Nicolicioiu) at University of Bucharest. We published together an article at ICML 2023.

2018 1 Master Student (Iulia Duta) at University of Bucharest, co-supervised with Marius Leordeanu. She published an article in BMVC 2018.

2011 1 Master Student (Viviana Petrescu) at ETH Zurich, we published an article in NIPS 2011 (see publications list).

GRANTS

2019-2023 Responsible from the Faculty of Mathematics and Computer Science, University of Bucharest, in the project „SpaceTime Vision – Towards Unsupervised Learning in the 4D World" in collaborations with the University Politehnica of Bucharest. This is a Norwegian grant funded with 245.000 from the SEE 2014-2021 program.

2017-2018 Responsible from the Faculty of Mathematics and Computer Science, University of Bucharest, in the project „Automatic linguistic description of objects, people and their interactions in indoor videos" in collaborations with the Institute of Mathematics of the Romanian Academy . National project funded with 105.000 Euro through PNCDI III – P2 PED program.

2008-2013 Member of the research grant „Automatic visual learning through multi-modal interaction", awarded by Swiss National Science Foundation, director Vittorio Ferrari.

2005-2006 Member of the University of Bucharest team in the research grant „Scan-statistics. Applications in medicine", in partnership with Lille University 2, France.

2005-2007 Member of the University of Bucharest team in the research grant „Multi attribute decision making", in partnership with National Institute for Research and Development in Informatics

ORGANISATION OF SCIENTIFIC MEETINGS

2019 Program chair of RAAI2018 – 3rd Conference on Recent Advances in Artificial Intelligence, University of Bucharest, Romania.

2018 Program chair of RAAI2018 – 2nd Conference on Recent Advances in Artificial Intelligence, University of Bucharest, Romania.

2017 Member of the organizing committee of RAAI2017 – 1st Conference on Recent Advances in Artificial Intelligence, University of Bucharest, Romania.

GRANTED PATENTS

1) Romania patent,"*Algoritm for automatic abnormal event detection based on convoultional neural networks*", R. Ionescu, S. Smeureanu, B.Alexe and M. Popescu. Applied for the patent to State Office for Inventions and Trademarks in February 2018.

Art. 1 We applied for a patent based on an algorithm for automatic abnormal event detection in video based on convolutional neural networks. The algorithm was presented in the ICCV 2017 paper.

INVITED TALKS

24.04.2016 Workshop on "Actual problems in Computer Science: algorithms, complexity, applications", Timisoara, Romania: "Measuring objectness and difficulty for visual learning"

AFFILIATIONS

2014-now University of Bucharest, Romania.

2013 University of Edinburgh, Scotland.

2008-2013 ETH Zurich, Switzerland.

Section 8: Publications of the Team Leader and Individual Team Members

Marius LEORDEANU – List of Publications

Total citations (Google Scholar): 8018
H-index: 36

Full list of publications on Google Scholar:
https://scholar.google.com/citations?user=se9kni0AAAAJ&hl=en&oi=ao

Full list of publications on DBLP:
https://dblp.org/pid/21/5985.html

8.1 Journal Publications

Total Cumultated Impact Factor: **125.46**
Total Citations for Journal Publications: **2834**

Team members are underlined. Please note that in all journal articles the principal author is either the team leader or another member of the team.

Articles in the Last Five Years (2019-Present)

Cumultated Impact Factor (last five years): **61.55**
Cumulated Citations for Journal Publications (last five years): **340**

1. Emanuela Haller, Adina Magda Florea, Marius Leordeanu:
Iterative Knowledge Exchange Between Deep Learning and Space-Time Spectral Clustering for Unsupervised Segmentation in Videos. IEEE Trans. Pattern Anal. Mach. Intell. 44(11): 7638-7656 (2022). Ranked 1st in Computer Science; Impact factor: 24.314; Citations: 4.

2. Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu: Unsupervised Learning of Foreground Object Segmentation. International Journal of Computer Vision, 127(9): 1279-1302 (2019) Q1. Impact factor: 13.369. Citations: 52

3. Nicolae Cudlenco, Nirvana Popescu, Marius Leordeanu:
Reading into the mind's eye: Boosting automatic visual recognition with EEG signals. Neurocomputing 386: 281-292 (2020) Q1. Impact Factor: 5.779; Citations: 36.

4. Marius Leordeanu, Iulia Paraicu: Driven by Vision: Learning Navigation by Visual Localization and Trajectory Prediction. Sensors 21(3): 852 (2021). Q1. Impact Factor: 3.847; Citations: 5.

5. Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Marius Leordeanu, Florica Moldoveanu: An Investigation of Various Machine and Deep Learning Techniques Applied in

Automatic Fear Level Detection and Acrophobia Virtual Therapy. Sensors 20(2): 496 (2020) Q1. Impact Factor: 3.847; Citations: 54.

6. Livia Petrescu, Catalin Petrescu, Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Florica Moldoveanu, Marius Leordeanu: Integrating Biosignals Measurement in Virtual Reality Environments for Anxiety Detection. Sensors 20(24): 7088 (2020). Q1. Impact Factor: 3.847; Citations: 41

7. Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Marius Leordeanu, Florica Moldoveanu: Fear Level Classification Based on Emotional Dimensions and Machine Learning Techniques. Sensors 19(7): 1738 (2019). Q1. Impact Factor: 3.847; Citations: 62.

8. Oana Mitrut (Balan), Gabriela Moise, Livia Petrescu, Alin Moldoveanu, Marius Leordeanu, Florica Moldoveanu: Emotion Classification Based on Biophysical Signals and Machine Learning Techniques. Symmetry 12(1): 21 (2020). Q2. Impact Factor: 2.7; Citations: 86.

Articles before 2019

Cumultated Impact Factor (before 2019): **63.90**
Cumulated Citations for Journal Publications (before 2019): **2494**

9. Robert T. Collins, Yanxi Liu, Marius Leordeanu:
Online Selection of Discriminative Tracking Features. IEEE Trans. Pattern Anal. Mach. Intell. 27(10): 1631-1643 (2005). Ranked 1st in Computer Science; IF: 24.314; Citations: 2022

10. Marius Leordeanu, Rahul Sukthankar, Cristian Sminchisescu:
Generalized Boundaries from Multiple Image Interpretations. IEEE Trans. Pattern Anal. Mach. Intell. 36(7): 1312-1324 (2014). Ranked 1st in Computer Science; IF: 24.314; Citations: 62

11. Marius Leordeanu, Rahul Sukthankar, Martial Hebert:
Unsupervised Learning for Graph Matching. Int. J. Comput. Vis. 96(1): 28-45 (2012)
Q1. Impact factor: 13.369. Citations: 282

12. Peter K. Allen, Alejandro J. Troccoli, Benjamin Smith, Stephen Murray, Ioannis Stamos, Marius Leordeanu: New Methods for Digital Modeling of Historic Sites. IEEE Computer Graphics and Applications 23(6): 32-41 (2003) Q2. Imp. factor: 1.909. Citations: 128

8.2 Selected publications of the team leader as first or principal author
(not including the journal articles mentioned at 8.1)

Book:
Marius Leordeanu, Unsupervised Learning in Space and Time - A Modern Approach for Computer Vision using Graph-based Techniques and Deep Neural Networks. Advances in Computer Vision and Pattern Recognition, Springer 2020, ISBN 978-3-030-42127-4, pp. 1-295

It is the best-selling book in the world on the topic of Unsupervised Learning since 2020, and it the 16th of all time, according to Bookauthority.org:
https://bookauthority.org/books/best-selling-unsupervised-learning-books?fbclid=IwAR3eSbrcBhLw1TCPaYOKFkDZro2VoeEQHjmrU0ilfojnQRgwYJQjJ2VkeXA

Selected conference papers:

The following International Conferences: IEEE-International Conference on Computer Vision (ICCV), Rank A+, Advances in Neural Information Processing Systems (NIPS), Rank A+, IEEE- International Conference on Computer Vision and Pattern Recognition (CVPR), Rank A+, and European Conference on Computer Vision (ECCV), Rank A, are at the very top in Computer Vision and Machine Learning.

1. M. Leordeanu and M. Hebert, A Spectral Technique for Correspondence Problems Using Pair- wise Constraints, ICCV, 2005. Citations: 1490.
2. M. Leordeanu, M. Hebert and R. Sukthankar, An Integer Projected Fixed Point Method for Graph Matching and MAP Inference, NIPS, 2009. Citations: 391.
3. M Leordeanu, M. Hebert, R. Sukthankar, Beyond Local Appearance: Category Recognition from Pairwise Interactions of Simple Features, CVPR, 2007. Citations: 222.
4. M Leordeanu, R Sukthankar, C Sminchisescu, Efficient Closed-Form Solution to Generalized Boundary Detection, European Conference on Computer Vision, 2012. Citations: 99
5. M Leordeanu, A Zanfir, C Sminchisescu, Locally affine sparse-to-dense matching for motion and occlusion estimation, ICCV, 2013. Citations: 90.
6. M. Leordeanu, A. Zanfir and C. Sminchisescu, Semi-supervised Learning and Optimization for Hypergraph Matching, ICCV, 2011. Citations: 78.
7. M. Leordeanu and M. Hebert, Smoothing-based Optimization, CVPR, USA, 2008. Citations: 71.
8. M. Leordeanu and C. Sminchisescu, Efficient Hypergraph Clustering, AISTATS, 2012. Citations: 57
9. M. Leordeanu and R. Collins, Unsupervised Learning of Object Features from Video Sequences, CVPR, 2005. Citations: 53.'
10. Leordeanu and M. Hebert, Efficient MAP Approximation for Dense Energy Functions, International Conference on Machine Learning (ICML, Rank A+), USA, 2006. Citations: 43
11. M. Leordeanu, A. Radu, S. Baluja, R. Sukthankar, Labeling the Features Not the Samples: Efficient Video Classification with Minimal Supervision, AAAI, 2016. Citations: 16.
12. O. Stretcu and M. Leordeanu, Multiple Frames Matching for Object Discovery in Video, Oral Presentation. Citations: 50
13. A. Nicolicioiu, I. Duta and M. Leordeanu, Recurrent Space-time Graph Neural Networks, NeurIPS, 2019. Citations: 39
14. I. Duta, A. Nicolicioiu, M. Leordeanu, Discovering Dynamic Salient Regions with Spatio-Temporal Graph Neural Networks, NeurIPS, 2021. Citations: 5.

8.3 List of publications by the team leader together with other team members
(members of the team are underlined)

Below we present a comprehensive list of 37 publications (25 in the last five years) of the Team Leader in collaboration with one or more Team Members.

The papers are published in top conferences and journals in the fields of computer vision and machine learning, with some being multidisciplinary (e.g. vision and learning for medicine; vision and language). The publication record of the research Team together with the Team leader can be summarized as follows:

- Two (2) articles during the last 5 years in the very top journals in the field (TPAMI with IF 24.314 and IJCV with IF: 13.369). We have two additional articles (not included in the list), with minor revisions at the prestigious Artificial Intelligence journal (IF: 14.05).
- Eleven (11) papers in the last 5 years and ten (10) papers before 2019 in the top conferences in computer vision, artificial intelligence, robotics or computational linguistics, such as ICCV, CVPR, AAAI, IJCAI, ICRA, ACCV, BMVC, ECCV, ICCV, COLING, Workshops, CVPR Workshops. All these conferences, including their workshops, are ranked at the very top according to Google Ranking, in one of the subcategories: Computer Vision and Pattern Recognition, Artificial Intelligence, Robotics and Computational Linguistics.
- Five (5) articles during the last 5 years in Q1 journals and one article in a Q2 journal.

Papers in the Last five years (February 2019 – Present)

1. Lucian Bicsi, Bogdan Alexe, Radu Tudor Ionescu, Marius Leordeanu:
JEDI: Joint Expert Distillation in a Semi-Supervised Multi-Dataset Student-Teacher Scenario for Video Action Recognition. International Conference on Computer Vision (Workshops), 2023:953-962

2. Alina Marcu, Mihai Cristian Pîrvu, Dragos Costea, Emanuela Haller, Emil Slusanschi, Nabil Belbachir, Rahul Sukthankar, Marius Leordeanu: Self-supervised Hypergraphs for Learning Multiple World Interpretations. International Conference on Computer Vision (Workshops), 2023:983-992

3. Mihai Cristian Pîrvu, Alina Marcu, Alexandra Dobrescu, Nabil Belbachir, Marius Leordeanu: Multi-Task Hypergraphs for Semi-supervised Learning using Earth Observations. International Conference on Computer Vision (Workshops), 2023: 3396-3406

4. Mihai Masala, Nicolae Cudlenco, Traian Rebedea, Marius Leordeanu:
Explaining Vision and Language through Graphs of Events in Space and Time. International Conference on Computer Vision (Workshops), 2023:2818-2823

5. Florin Condrea, Saikiran Rapaka, Lucian Mihai Itu, Puneet Sharma, Jonathan Sperl, A Mohamed Ali, Marius Leordeanu: Anatomically aware dual-hop learning for pulmonary

embolism detection in CT pulmonary angiograms. CoRR abs/2303.17593 (2023) Accepted with Minor Revision at Computers in Biology and Medicine, Impact Factor: 7.7.

5. Emanuela Haller, Adina Magda Florea, Marius Leordeanu:
Iterative Knowledge Exchange Between Deep Learning and Space-Time Spectral Clustering for Unsupervised Segmentation in Videos. IEEE Transactions on Pattern Analysis and Machine Intelligence 44(11): 7638-7656 (2022)

6. Vlad Licaret, Victor Robu, Alina Marcu, Dragos Costea, Emil Slusanschi, Rahul Sukthankar, Marius Leordeanu: UFO Depth: Unsupervised learning with flow-based odometry optimization for metric depth estimation. International Conference on Robotics and Automation, 2022: 6526-6532

7. Marius Leordeanu, Mihai Cristian Pîrvu, Dragos Costea, Alina Elena Marcu, Emil Slusanschi, Rahul Sukthankar: Semi-Supervised Learning for Multi-Task Scene Understanding by Neural Graph Consensus. AAAI Conference on Artificial Intelligence 2021: 1882-1892

8. Emanuela Haller, Elena Burceanu, Marius Leordeanu: Self-Supervised Learning in Multi-Task Graphs through Iterative Consensus Shift. British Machine Vision Confence 2021

9. Mihai Cristian Pîrvu, Victor Robu, Vlad Licaret, Dragos Costea, Alina Marcu, Emil Slusanschi, Rahul Sukthankar, Marius Leordeanu: Depth Distillation: Unsupervised Metric Depth Estimation for UAVs by Finding Consensus Between Kinematics, Optical Flow and Deep Learning. Computer Vision and Pattern Recognition (Workshops) 2021: 3215-3223

10. Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu, Hailin Jin, Andrew Zisserman, Samuel Albanie, Yang Liu: TeachText: CrossModal Generalized Distillation for Text-Video Retrieval. International Conference on Computer Vision, 2021: 11563-11573

11. Nicolae Cudlenco, Nirvana Popescu, Marius Leordeanu:
Reading into the mind's eye: Boosting automatic visual recognition with EEG signals. Neurocomputing 386: 281-292 (2020)

12. Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Marius Leordeanu, Florica Moldoveanu: An Investigation of Various Machine and Deep Learning Techniques Applied in Automatic Fear Level Detection and Acrophobia Virtual Therapy. Sensors 20(2): 496 (2020)

13. Livia Petrescu, Catalin Petrescu, Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Florica Moldoveanu, Marius Leordeanu: Integrating Biosignals Measurement in Virtual Reality Environments for Anxiety Detection. Sensors 20(24): 7088 (2020)

14. Oana Mitrut (Balan), Gabriela Moise, Livia Petrescu, Alin Moldoveanu, Marius Leordeanu, Florica Moldoveanu: Emotion Classification Based on Biophysical Signals and Machine Learning Techniques. Symmetry 12(1): 21 (2020)

15. Alina Marcu, Vlad Licaret, Dragos Costea, Marius Leordeanu:
Semantics Through Time: Semi-supervised Segmentation of Aerial Videos with Iterative Label Propagation. ACCV (1) 2020: 537-552

16. Simion-Vlad Bogolin, Ioana Croitoru, Marius Leordeanu:
A hierarchical approach to vision-based language generation: from simple sentences to complex natural language. COLING 2020: 2436-2447

17. Florin Condrea, Victor-Andrei Ivan, Marius Leordeanu:
In Search of Life: Learning from Synthetic Data to Detect Vital Signs in Videos. CVPR Workshops 2020: 1207-1216

18. Oana Mitrut (Balan), Stefania Cristea, Gabriela Moise, Livia Petrescu, Silviu Ivascu, Alin Moldoveanu, Florica Moldoveanu, Marius Leordeanu: eTher - An Assistive Virtual Agent for Acrophobia Therapy in Virtual Reality. HCI (46) 2020: 12-25

19. Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Florica Moldoveanu, Marius Leordeanu: Classifying the Levels of Fear by Means of Machine Learning Techniques and VR in a Holonic-Based System for Treating Phobias. Experiments and Results. HCI (11) 2020: 357-372

20. Elena Burceanu, Marius Leordeanu: A 3D Convolutional Approach to Spectral Object Segmentation in Space and Time. International Joint Conference on Artificial Intelligence, 2020: 495-501

21. Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu: Unsupervised Learning of Foreground Object Segmentation. International Journal of Computer Vision, 127(9): 1279-1302 (2019)

22. Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Marius Leordeanu, Florica Moldoveanu: Fear Level Classification Based on Emotional Dimensions and Machine Learning Techniques. Sensors 19(7): 1738 (2019)

23. Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Florica Moldoveanu, Marius Leordeanu: Automatic Adaptation of Exposure Intensity in VR Acrophobia Therapy, based on Deep Neural Networks. ECIS 2019

24. Oana Mitrut (Balan), Stefania Cristea, Alin Moldoveanu, Gabriela Moise, Marius Leordeanu, Florica Moldoveanu: Towards a Human-Centered Approach for VRET Systems: Case Study for Acrophobia. ISD 2019

Papers before February 2019

25. Iulia Duta, Andrei Liviu Nicolicioiu, Simion-Vlad Bogolin, Marius Leordeanu: Mining for meaning: from vision to language through multiple networks consensus. BMVC 2018: 275

26. Dragos Costea, Alina Marcu, Emil Slusanschi, Marius Leordeanu: Roadmap Generation Using a Multi-Stage Ensemble of Deep Neural Networks With Smoothing-Based Optimization. CVPR Workshops 2018: 220-224

27. Alina Marcu, Dragos Costea, Vlad Licaret, Mihai Cristian Pîrvu, Emil Slusanschi, Marius Leordeanu: SafeUAV: Learning to Estimate Depth and Safe Landing Areas for UAVs from Synthetic Data. ECCV Workshops (2) 2018: 43-58

28. Elena Burceanu, Marius Leordeanu: Learning a Robust Society of Tracking Parts Using Co-occurrence Constraints. ECCV Workshops (1) 2018: 162-178

29. Oana Mitrut (Balan), Gabriela Moise, Alin Moldoveanu, Florica Moldoveanu, Marius Leordeanu: Does automatic game difficulty level adjustment improve acrophobia therapy?: differences from baseline. VRST 2018: 78:1-78:2

30. Alina Elena Marcu, Marius Leordeanu: Object Contra Context: Dual Local-Global Semantic Segmentation in Aerial Images. AAAI International Conference on Workshops 2017

31. Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu: Unsupervised Learning from Video to Detect Foreground Objects in Single Images. International Conference on Computer Vision, 2017: 4345-4353

32. Emanuela Haller, Marius Leordeanu: Unsupervised Object Segmentation in Video by Efficient Selection of Highly Probable Positive Features. Intarnational Conference on Computer Vision, 2017: 5095-5103

33. Dragos Costea, Alina Marcu, Emil Slusanschi, Marius Leordeanu: Creating Roadmaps in Aerial Images with Generative Adversarial Networks and Smoothing-Based Optimization. ICCV Workshops 2017: 2100-2109

34. Dragos Costea, Marius Leordeanu: Aerial image geolocalization from recognition and matching of roads and intersections. British Machine Vision Conference, 2016

35. Radu Tudor Ionescu, Bogdan Alexe, Marius Leordeanu, Marius Popescu, Dim P. Papadopoulos, Vittorio Ferrari: How Hard Can It Be? Estimating the Difficulty of Visual Search in an Image. Computer Vision and Pattern Recognition, 2016: 2157-2166

36. Alina Marcu, Marius Leordeanu:
Dual Local-Global Contextual Pathways for Recognition in Aerial Imagery. CoRR abs/1605.05462 (2016)

Alina MARCU - List of publications

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Total number of citation (Google Profile): **268**
H-index: **9**

Last updated: 29.01.2024

Nr. Crt.	Paper Title / Citation	Num. of citations	Year of publication	Venue
1	Costea, Dragos, **Alina Marcu**, Emil Slusanschi, and Marius Leordeanu. "Creating roadmaps in aerial images with generative adversarial networks and smoothing-based optimization." In *Proceedings of the IEEE International Conference on Computer Vision Workshops*, pp. 2100-2109. 2017.	57	2017	ICCV (workshop)
2	**Marcu, Alina**, Dragos Costea, Vlad Licaret, Mihai Pîrvu, Emil Slusanschi, and Marius Leordeanu. "SafeUAV: Learning to estimate depth and safe landing areas for UAVs from synthetic data." In *Proceedings of the European Conference on Computer Vision (ECCV) Workshops*, pp. 0-0. 2018.	55	2018	ECCV (workshop)
3	**Marcu, Alina**, and Marius Leordeanu. "Dual local-global contextual pathways for recognition in aerial imagery." *arXiv preprint arXiv:1605.05462* (2016).	42	2016	ArXiv
4	**Marcu, Alina**, Dragos Costea, Emil Slusanschi, and Marius Leordeanu. "A multi-stage multi-task neural network for aerial scene interpretation and geolocalization." *arXiv preprint arXiv:1804.01322* (2018).	30	2018	ArXiv
5	**Marcu, Alina**, Vlad Licaret, Dragos Costea, and Marius Leordeanu. "Semantics through time: Semi-supervised segmentation of aerial videos with iterative label propagation." In *Proceedings of the Asian Conference on Computer Vision*. 2020.	13	2020	ACCV (conference, oral)
6	Costea, Dragos, **Alina Marcu**, Emil Slusanschi, and Marius Leordeanu. "Roadmap generation using a multi-stage ensemble of deep neural networks with smoothing-based optimization." In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, pp. 220-224. 2018.	11	2018	CVPR (workshop)

7	Leordeanu, Marius, Mihai Cristian Pîrvu, Dragos Costea, **Alina E. Marcu**, Emil Slusanschi, and Rahul Sukthankar. "Semi-supervised learning for multi-task scene understanding by neural graph consensus." In *Proceedings of the AAAI Conference on Artificial Intelligence*, vol. 35, no. 3, pp. 1882-1892. 2021.	10	2021	AAAI (conference, oral)
8	**Marcu, Alina Elena**. "A local-global approach to semantic segmentation in aerial images." *arXiv preprint arXiv:1607.05620* (2016).	10	2016	Dissertation Thesis
9	Pirvu, Mihai, Victor Robu, Vlad Licaret, Dragos Costea, **Alina Marcu**, Emil Slusanschi, Rahul Sukthankar, and Marius Leordeanu. "Depth distillation: unsupervised metric depth estimation for UAVs by finding consensus between kinematics, optical flow and deep learning." In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pp. 3215-3223. 2021.	8	2021	CVPR (workshop)
10	**Marcu, Alina Elena**, and Marius Leordeanu. "Object contra context: Dual local-global semantic segmentation in aerial images." In *Workshops at the Thirty-First AAAI Conference on Artificial Intelligence*. 2017.	8	2017	AAAI (workshop)
11	**Marcu, Alina**, Dragos Costea, Vlad Licaret, and Marius Leordeanu. "Towards automatic annotation for semantic segmentation in drone videos." *arXiv preprint arXiv:1910.10026* (2019).	6	2019	ArXiv
12	Licăret, Vlad, Victor Robu, **Alina Marcu**, Dragoş Costea, Emil Sluşanschi, Rahul Sukthankar, and Marius Leordeanu. "UFO Depth: Unsupervised learning with flow-based odometry optimization for metric depth estimation." In *2022 International Conference on Robotics and Automation (ICRA)*, pp. 6526-6532. IEEE, 2022.	3	2022	ICRA (conference)
13	Leordeanu, Marius, **Alina Elena Marcu**, Iulia-Adriana Muntianu, and Catalin Mutu. "Automatic detection, counting, and measurement of lumber boards using a handheld device." U.S. Patent 11,216,905, issued January 4, 2022.	2	2022	US Patent
14	**Marcu, Alina**, Mihai Pirvu, Dragos Costea, Emanuela Haller, Emil Slusanschi, Ahmed Nabil Belbachir, Rahul Sukthankar, and Marius Leordeanu. "Self-supervised hypergraphs for learning multiple world interpretations." In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pp. 983-992. 2023.	1	2023	ICCV (workshop)

15	Pirvu, Mihai, **Alina Marcu**, Maria Alexandra Dobrescu, Ahmed Nabil Belbachir, and Marius Leordeanu. "Multi-Task Hypergraphs for Semi-supervised Learning using Earth Observations." In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pp. 3404-3414. 2023.	-	2023	ICCV (workshop)

Dragos COSTEA - List of publications

Google Scholar: https://scholar.google.com/citations?user=oQCpg28AAAAJ&hl=en&oi=ao
Total number of citations: **280**
H-Index: **8**

Last updated: 30.01.2024

Nr. Crt.	Paper Title / Citation	Num. of citations	Year of publication	Venue
1	**Dragos Costea**, Marius Leordeanu, "Aerial image geolocalization from recognition and matching of roads and intersections", BMVC 2016	73	2016	BMVC
2	**Costea, Dragos**, Alina Marcu, Emil Slusanschi, and Marius Leordeanu. "Creating roadmaps in aerial images with generative adversarial networks and smoothing-based optimization." In *Proceedings of the IEEE International Conference on Computer Vision Workshops*, pp. 2100-2109. 2017.	57	2017	ICCV (workshop)
3	Marcu, Alina, **Dragos Costea**, Vlad Licaret, Mihai Pîrvu, Emil Slusanschi, and Marius Leordeanu. "SafeUAV: Learning to estimate depth and safe landing areas for UAVs from synthetic data." In *Proceedings of the European Conference on Computer Vision (ECCV) Workshops*, pp. 0-0. 2018.	55	2018	ECCV (workshop)
4	Marcu, Alina, **Dragos Costea,** Emil Slusanschi, and Marius Leordeanu. "A multi-stage multi-task neural network for aerial scene interpretation and geolocalization." *arXiv preprint arXiv:1804.01322* (2018).	30	2018	ArXiv
5	Marcu, Alina, Vlad Licaret, **Dragos Costea**, and Marius Leordeanu. "Semantics through time: Semi-supervised segmentation of aerial videos with iterative label propagation." In *Proceedings of the Asian Conference on Computer Vision*. 2020.	13	2020	ACCV (conference, oral)
6	**Costea, Dragos**, Alina Marcu, Emil Slusanschi, and Marius Leordeanu. "Roadmap generation using a multi-stage ensemble of deep neural networks with smoothing-based optimization." In *Proceedings of the IEEE*	11	2018	CVPR (workshop)

	Conference on Computer Vision and Pattern Recognition Workshops, pp. 220-224. 2018.			
7	Leordeanu, Marius, Mihai Cristian Pîrvu, **Dragos Costea,** Alina E. Marcu, Emil Slusanschi, and Rahul Sukthankar. "Semi-supervised learning for multi-task scene understanding by neural graph consensus." In *Proceedings of the AAAI Conference on Artificial Intelligence*, vol. 35, no. 3, pp. 1882-1892. 2021.	10	2021	AAAI (conference)
8	Pirvu, Mihai, Victor Robu, Vlad Licaret, **Dragos Costea**, Alina Marcu, Emil Slusanschi, Rahul Sukthankar, and Marius Leordeanu. "Depth distillation: unsupervised metric depth estimation for UAVs by finding consensus between kinematics, optical flow and deep learning." In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*, pp. 3215-3223. 2021.	8	2021	CVPR (workshop)
9	Marius Leordeanu, Iulia-Adriana Muntianu, **Dragos Cristian Costea,** Catalin Mutu – US Patent 11189022: Automatic detection, counting, and measurement of logs using a handheld device		2021	US Patent
10	Marcu, Alina, **Dragos Costea**, Vlad Licaret, and Marius Leordeanu. "Towards automatic annotation for semantic segmentation in drone videos." *arXiv preprint arXiv:1910.10026* (2019).	6	2019	ArXiv
11	Licăret, Vlad, Victor Robu, Alina Marcu, **Dragoş Costea**, Emil Sluşanschi, Rahul Sukthankar, and Marius Leordeanu. "UFO Depth: Unsupervised learning with flow-based odometry optimization for metric depth estimation." In *2022 International Conference on Robotics and Automation (ICRA)*, pp. 6526-6532. IEEE, 2022.	3	2022	ICRA (conference)
12	Marcu, Alina, Mihai Pirvu, **Dragos Costea**, Emanuela Haller, Emil Slusanschi, Ahmed Nabil Belbachir, Rahul Sukthankar, and Marius Leordeanu. "Self-supervised hypergraphs for learning multiple world interpretations." In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, pp. 983-992. 2023.	1	2023	ICCV (workshop)

Mihai PIRVU - List of Publications

Google Scholar: https://scholar.google.com/citations?user=mZhi-2cAAAAJ&hl=en&oi=ao
Total number of citations: **81**
H-index: **4**

1. Marcu, A., Costea, D., Licăreţ, V., Pîrvu, M., Sluşanschi, E., & Leordeanu, M. (2018, September). SafeUAV: learning to estimate depth and safe landing areas for UAVs from

synthetic data. In European Conference on Computer Vision (pp. 43-58). Springer, Cham.
2. Leordeanu, Marius, et al. "Semi-supervised learning for multi-task scene understanding by neural graph consensus." Proceedings of the AAAI Conference on Artificial Intelligence. Vol. 35. No. 3. 2021.
3. Pirvu, Mihai, et al. "Depth distillation: unsupervised metric depth estimation for UAVs by finding consensus between kinematics, optical flow and deep learning." Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition. 2021.
4. Marcu, Alina, et al. "Self-supervised Hypergraphs for Learning Multiple World Interpretations." Proceedings of the IEEE/CVF International Conference on Computer Vision. 2023.
5. Pirvu, Mihai, et al. "Multi-Task Hypergraphs for Semi-supervised Learning using Earth Observations." Proceedings of the IEEE/CVF International Conference on Computer Vision. 2023

Mihai MASALA - List of publications

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Total number of citations: 115
H-index: 5

Last updated: 31.01.2024

Nr. Crt.	Paper Title / Citation	Num. of citations	Year of publication	Venue
1	**Masala, M.,** Cudlenco, N., Rebedea, T., & Leordeanu, M. (2023). Explaining Vision and Language through Graphs of Events in Space and Time. In *Proceedings of the IEEE/CVF International Conference on Computer Vision* (pp. 2826-2831).	0	2023	ICCV (workshop)
2	**Masala, M.,** Ruseti, S., Rebedea, T., Dascalu, M., Gutu-Robu, G., & Trausan-Matu, S. (2021). Identifying the Structure of CSCL Conversations Using String Kernels. *Mathematics*, *9*(24), 3330	2	2021	Mathematics
3	**Masala, M.,** Iacob, R. C. A., Uban, A. S., Cidota, M., Velicu, H., Rebedea, T., & Popescu, M. (2021, November). jurBERT: A Romanian BERT model for legal judgement prediction. In *Proceedings of the Natural Legal Language Processing Workshop 2021* (pp. 86-94).	17	2021	EMNLP (workshop)
4	**Masala, M.,** Ruseti, S., Dascalu, M., & Dobre, C. (2021, June). Extracting and clustering main ideas from student feedback using language models. In	12	2021	AIED

	International Conference on Artificial Intelligence in Education (pp. 282-292). Cham: Springer International Publishing.			
5	**Masala, M.,** Ruseti, S., & Dascalu, M. (2020, December). Robert–a romanian bert model. In *Proceedings of the 28th International Conference on Computational Linguistics* (pp. 6626-6637).	65	2020	COLING
6	**Masala, M.,** Ruseti, S., Gutu-Robu, G., Rebedea, T., Dascalu, M., & Trausan-Matu, S. (2018). Help me understand this conversation: Methods of identifying implicit links between cscl contributions. In *Lifelong Technology-Enhanced Learning: 13th European Conference on Technology Enhanced Learning, EC-TEL 2018, Leeds, UK, September 3-5, 2018, Proceedings 13* (pp. 482-496). Springer International Publishing.	5	2018	EC-TEL
7	**Masala, M.,** Ruseti, S., Gutu-Robu, G., Rebedea, T., Dascalu, M., & Trausan-Matu, S. (2018). Identifying implicit links in CSCL chats using string kernels and neural networks. In *Artificial Intelligence in Education: 19th International Conference, AIED 2018, London, UK, June 27–30, 2018, Proceedings, Part II 19* (pp. 204-208). Springer International Publishing.	2	2018	AIED
8	**Masala, M.,** Ruseti, S., & Rebedea, T. (2017). Sentence selection with neural networks using string kernels. *Procedia Computer Science*, *112*, 1774-1782.	12	2017	KES

Nicolae CUDLENCO – List of Publications

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Total number of citations: **36**

1. *Masala, M., Cudlenco, N., Rebedea, T., & Leordeanu, M.* (**2023**). Explaining Vision and Language through Graphs of Events in Space and Time. In Proceedings of the IEEE/CVF International Conference on Computer Vision (pp. 2826-2831).

2. *Masala, M., Cudlenco, N., Rebedea, T., & Leordeanu, M.* **(2023)**. GEST: the Graph of Events in Space and Time as a Common Representation between Vision and Language. *arXiv preprint arXiv:2305.12940*.
3. *Cudlenco, N., Popescu, N., & Leordeanu, M. (2020)*. Reading into the mind's eye: Boosting automatic visual recognition with EEG signals. Neurocomputing, 386, 281-292. Awarded by UEFISCDI (Top "Red Zone" Journal) **Citations: 36**

Florin CONDREA – List of Publications

Google Scholar: https://scholar.google.com/citations?user=npgNUCUAAAAJ&hl=en&oi=ao

Total number of citations: **11**

1. Florin Condrea, Florin, Victor-Andrei Ivan, and Marius Leordeanu. "In search of life: Learning from synthetic data to detect vital signs in videos." *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops*. 2020. **8 Citations**

2. Cosmin-Andrei Hatfaludi, Manuela-Daniela Danu, Horia-Andrei Leonte, Andreea-Bianca Popescu, Florin Condrea, Gabriela-Dorina Aldea, Andreea-Elena Sandu, Marius Leordeanu, Constantin Suciu, Ioana-Patricia Rodean, Lucian-Mihai Itu: "Applications of Artificial Intelligence in Cardiovascular Emergencies–Status Quo and Outlook." *Journal of Cardiovascular Emergencies* 9.4 (2023): 83-102.

3. Florin Condrea, S Rapaka, L Itu, P Sharma, J Sperl, AM Ali, M Leordeanu, "Anatomically aware dual-hop learning for pulmonary embolism detection in CT pulmonary angiograms." *arXiv preprint arXiv:2303.17593* (2023). **3 Citations** **Accepted with Minor Revisions** at Computers in Biology and Medicine **(Q1) IF 7.7**

Vlad Licaret – List of Publications

Google Scholar: https://scholar.google.com/citations?user=yrohmTYAAAAJ&hl=en&oi=ao
Total number of citations: **44**
H-index: **4**

Papers

1. Licaret, Vlad, et al. "UFO Depth: Unsupervised learning with flow-based odometry optimization for metric depth estimation." International Conference on Robotics and Automation, 2022
   (3 Citations)
2. Pirvu, Mihai, et al. "Depth distillation: unsupervised metric depth estimation for UAVs by finding consensus between kinematics, optical flow and deep learning." CVPR Embedded

Vision Workshop, 2021
(8 Citations)

3. Marcu, Alina, et al. "Semantics through Time: Semi-supervised Segmentation of Aerial Videos with Iterative Label Propagation." Asian Conference on Computer Vision, 2020
(13 Citations)
4. Marcu, Alina, et al. "SafeUAV: learning to estimate depth and safe landing areas for UAVs from synthetic data." European Conference on Computer Vision, 2018
(55 Citations)

Patents

1. Automatic Detection, Counting, and Measurement of Lumber Boards Using a Handheld Device. US10586321B2
Inventors: Marius Leordeanu, Vlad Licaret, Tudor Buzu, Iulia-Adriana Muntianu, Catalin Mutu, 2020
(3 Citations)

Cristina LAZAR – List of Published Works and Art with AI Exhibitions

- **AI Art Project "Between Worlds"** - exhibited at **Miami 3.0 Exhibition** organized by Artbox.Project, during **Art Basel Weeks Miami**, in the prestigious cultural center Wynwood Art District in Miami Beach, Miami, USA, December 2022. Art made with a new AI approach. Authors: Artist Cristina Lazăr and AI Scientists Drd. Dragos Costea and Prof. Marius Leordeanu.

- **SmileProject Deep Immersive Art with Realtime Human AI Interaction** - UNArte Bachelor's Thesis, 2019, in collaboration with Prof. Marius Leordeanu. SmileProject was presented in July 2019 at the Poster Session of the **Eastern European Machine Learning Summer School (EEML)** (https://www.eeml.eu/). I am proud that the project received highly enthusiastic and positive feedback from renowned international professors and researchers such as Prof. Andrew Zisserman (Oxford University), Dr. Rahul Sukthankar, Vice President of Research at Google and Dr. Nabil Belbachir, Research Director at NORCE.

- SmileProject was presented at the following national exhibititions, such as:
  1) **ART Walk Street Festival** (September 2019) (Piața Revoluției, Bucharest). In September, it was selected among the best bachelor's theses in the country at
  2) **Diploma - National Festival of Young Artists (October 2019)**, selected among the best in the Diploma Projects in the country. The exhibition had over 10000 visitors https://diplomafestival.ro/portofolii/proiectulzambet).
  3) **BINAR - Digital Art Festival** (November 2019) as part of the Bucharest edition of the **The Wrong Biennale** (https://institute.ro/digital/binar-2019-5367.html).

- Dragos Costea, Alina Marcu, Cristina Lazar, Marius Leordeanu *Maia: A Real-time Non-Verbal Chat for Human-AI Interaction* (initial version published on Arxiv, 2024), submitted to Nature Scientific Reports (Q1) IF 4.6, special issue on Engineering Human-Machine Interfaces
- Book: Cristina Lazar, "Cetatea Cuvintelor", Pro-Transilvania Publishing House, March 2004.
- Artwork "The Parable of the Blind Men" created for the scientific book: M. Leordeanu, Unsupervised Learning in Space and Time: A Modern Approach for Computer Vision using Graph-based Techniques and Deep Neural Networks, 300 pages, Springer, May 2020.
- Publication of my visual art work **"Her eyes"**, especially created for the scientific article: Leordeanu, Marius, and Rahul Sukthankar. "Towards a visual story network using multiple views for object recognition at different levels of spatiotemporal context." *The Physics of the Mind and Brain Disorders: Integrated Neural Circuits Supporting the Emergence of Mind* (2017): 573-610.
- Book cover: M. Leordeanu, "Ma numesc albastru", 178 pages, ed. Green Valley, 2016.
- Book cover and illustrations for: M. Leordeanu, "Povestea unui cuvant", 76 pages, Papirus Media publishing house, 2013.

Ioana Croitoru – List of Publications

Google Scholar: https://scholar.google.com/citations?user=UTn-_qEAAAAJ&hl=en&oi=ao
Total number of citations: **280**
H-index: **4**

1. "TeachText: CrossModal Generalized Distillation for Text-Video Retrieval" Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu, Hailin Jin, Andrew Zisserman, Samuel Albanie, Yang Liu. Proceedings of the IEEE/CVF International Conference on Computer Vision, 2021. Citations 110
2. "Unsupervised learning from video to detect foreground objects in single images" Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu. Proceedings of the IEEE International Conference on Computer Vision, 2017. Citations 57
3. "Cross modal retrieval with querybank normalisation" Simion-Vlad Bogolin, Ioana Croitoru, Hailin Jin, Yang Liu, Samuel Albanie. Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2022. Citations 56
4. "Unsupervised Learning of Foreground Object Segmentation" Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu. International Journal of Computer Vision, 2019. Citations 52
5. "A hierarchical approach to vision-based language generation: from simple sentences to complex natural language" Simion-Vlad Bogolin, Ioana Croitoru, Marius Leordeanu. Proceedings of the 28th International Conference on Computational Linguistics, 2020. Citations 4
6. "Moment detection in long tutorial videos" Ioana Croitoru, Simion-Vlad Bogolin, Samuel Albanie, Yang Liu, Zhaowen Wang, Seunghyun Yoon, Franck Dernoncourt, Hailin Jin, Trung Bui. Proceedings of the IEEE/CVF international conference on computer vision, 2023. Citations 1

Vlad Bogolin – List of Publications

Google Scholar: https://scholar.g5ogle.com/citations?user=isei8_wAAAAJ&hl=en&oi=ao
Total number of citations: **285**
H-index: **5**

1. "Teachtext: Crossmodal generalized distillation for text-video retrieval" Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu, Hailin Jin, Andrew Zisserman, Samuel Albanie, Yang Liu. Proceedings of the IEEE/CVF International Conference on Computer Vision, 2021. Citations 110
2. "Unsupervised learning from video to detect foreground objects in single images" Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu. Proceedings of the IEEE International Conference on Computer Vision, 2017. Citations 57
3. "Cross modal retrieval with querybank normalisation" Simion-Vlad Bogolin, Ioana Croitoru, Hailin Jin, Yang Liu, Samuel Albanie. Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2022. Citations 56
4. "Unsupervised learning of foreground object segmentation" Ioana Croitoru, Simion-Vlad Bogolin, Marius Leordeanu. International Journal of Computer Vision, 2019. Citations 52
5. "Mining for meaning: from vision to language through multiple networks consensus" Iulia Duta, Andrei Liviu Nicolicioiu, Simion-Vlad Bogolin, Marius Leordeanu. arXiv preprint arXiv:1806.01954,2018. Citations 5
6. "A hierarchical approach to vision-based language generation: from simple sentences to complex natural language" Simion-Vlad Bogolin, Ioana Croitoru, Marius Leordeanu. Proceedings of the 28th International Conference on Computational Linguistics, 2020. Citations 4
7. "Moment detection in long tutorial videos" Ioana Croitoru, Simion-Vlad Bogolin, Samuel Albanie, Yang Liu, Zhaowen Wang, Seunghyun Yoon, Franck Dernoncourt, Hailin Jin, Trung Bui. Proceedings of the IEEE/CVF international conference on computer vision, 2023. Citations 1

Elena Burceanu – List of Publications

Google Scholar: https://scholar.google.com/citations?user=bL34yDkAAAAJ&hl=en&oi=ao
Number of citations: **110**
H-index: **7**

1. "DATE: Detecting Anomalies in Text via Self-Supervision of Transformers" Andrei Manolache, Florin Brad, Elena Burceanu. NAACL 2021 - North American Chapter of the Association for Computational Linguistics, 2021. Citations 19
2. "Continuous user authentication using machine learning on touch dynamics" Ştefania Budulan, Elena Burceanu, Traian Rebedea, Costin Chiru. ICONIP 2015 - International Conference on Neural Information Processing, 2015. Citations 17
3. "AnoShift: A distribution shift benchmark for unsupervised anomaly detection" Marius Dragoi, Elena Burceanu, Emanuela Haller, Andrei Manolache, Florin Brad. Advances in

Neural Information Processing Systems, 2022. Citations 14

4. "Privacy protection for mobile devices" Vlad Valceanu, Elena Burceanu, Dragos T Gavrilut, Tiberius Axinte, Vlad Bordianu, Razvan M Benchea. US Patent 9,292,694, 2016. Citations 14
5. "Systems and methods for translating natural language sentences into database queries" Elena Burceanu, Brad Florin, Traian Rebedea. US Patent 11,194,799, 2021. Citations 12
6. "Transferring bert-like transformers' knowledge for authorship verification" Andrei Manolache, Florin Brad, Elena Burceanu, Antonio Barbalau, Radu Ionescu, Marius Popescu. arXiv preprint arXiv:2112.05125, 2021. Citations 11
7. "Learning a Robust Society of Tracking Parts using Co-occurrence Constraints" Elena Burceanu, Marius Leordeanu. ECCV 2018 - Visual Object Tracking Workshop, 2018. Citations 11
8. "A 3D Convolutional Approach to Spectral Object Segmentation in Space and Time" Elena Burceanu, Marius Leordeanu. IJCAI 2020 - International Joint Conference on Artificial Intelligence, 2020. Citations 4
9. "Env-Aware Anomaly Detection: Ignore Style Changes, Stay True to Content!" Stefan Smeu, Elena Burceanu, Andrei Liviu Nicolicioiu, Emanuela Haller. arXiv preprint arXiv:2210.03103, 2022. Citations 3
10. "Self-Supervised Learning in Multi-Task Graphs through Iterative Consensus Shift" Emanuela Haller, Elena Burceanu, Marius Leordeanu. BMVC 2021. Citations 3
11. "Privacy-preserving image distribution" Elena Burceanu, Madalina Bolboceanu, Emanuela Haller, Georgiana M Rosca, Bogdan C Cebere, Radu Titiu. US Patent 11,604,893, 2023. Citations 2
12. "Anomaly detection systems and methods" Andrei M Manolache, Alexandru Novac, Elena Burceanu. US Patent 11,847,111, 2023.
13. "Privacy-Preserving Domain Name Services (DNS)" Bogdan C Cebere, Elena Burceanu, Madalina Bolboceanu, Emanuela Haller, Georgiana M Rosca, Radu Titiu. US Patent App. 18/357,521. 2023
14. "Computer Security Systems and Methods Using Self-Supervised Consensus-Building Machine Learning" Elena Burceanu, Emanuela Haller, Marius Leordeanu, Razvan Prejbeanu, Constantin D Cernat. US Patent App. 17/656,644, 2023.
15. "Privacy-preserving image distribution" Elena Burceanu, Madalina Bolboceanu, Emanuela Haller, Georgiana M Rosca, Bogdan C Cebere, Radu Titiu. US Patent 11,768,957, 2023
16. "Privacy-preserving domain name service (DNS)" Bogdan C Cebere, Elena Burceanu, Madalina Bolboceanu, Emanuela Haller, Georgiana M Rosca, Radu Titiu. US Patent 11,750,363. 2023
17. "Image distribution using composite re-encrypted images" Elena Burceanu, Madalina Bolboceanu, Emanuela Haller, Georgiana M Rosca, Bogdan C Cebere, Radu Titiu. US Patent 11,599,669. 2023
18. "SFTrack++: A Fast Learnable Spectral Segmentation Approach for Space-Time Consistent Tracking" Elena Burceanu. NeurIPS 2020, Pre-registration Workshop & PMLR journal, 2020.
19. "Privacy protection for mobile devices" Vlad Valceanu, Elena Burceanu, Dragos T Gavrilut, Tiberius Axinte, Vlad Bordianu, Razvan M Benchea. US Patent 9,830,459. 2017

Emanuela Haller – List of Publications

Google Scholar: https://scholar.google.com/citations?user=KK1d87cAAAAJ&hl=en&oi=ao
Total number of citations: **150**
H-index: **4**

Year	Publications	Citations
2013	**Emanuela Haller** and Traian Rebedea. "*Designing a Chat-bot that Simulates an Historical Figure*". IEEE International Conference on Control Systems and Computer Science - CSCS 2013	72
2017	**Emanuela Haller** and Marius Leordeanu."*Unsupervised object segmentation in video by efficient selection of highly probable positive features*". IEEE International Conference on Computer Vision - ICCV 2017	39
2022	Marius Dragoi*, Elena Burceanu*, **Emanuela Haller***, Andrei Manolache, Florin Brad. "*AnoShift:A Distribution Shift Benchmark for Unsupervised Anomaly Detection*". The thirty-sixth Conference on Neural Information Processing - NeurIPS 2022 Datasets and Benchmarks Track (* equal contribution)	12
2013	**Emanuela Haller**, Georgiana Scarlat, Irina Mocanu and Mihai Trascau. "*Human Activity Recognition Based on Multiple Kinects*". Springer Evaluating AAL Systems Through Competitive Benchmarking - EvAAL 2013	9
2022	**Emanuela Haller**, Adina Magda Florea, Marius Leordeanu."*Iterative Knowledge Exchange Between Deep Learning and Space-Time Spectral Clustering for Unsupervised Segmentation in Videos*". IEEE Transactions on Pattern Analysis and Machine Intelligence, Volume 44, Issue 11, 2022	4
2022	Stefan Smeu*, Elena Burceanu*, Andrei Nicolicioiu, **Emanuela Haller**. "*Env-Aware Anomaly Detection: Ignore Style Changes, Stay True to Content!*". The thirty-sixth Conference on Neural Information Processing - NeurIPS 2022 Workshop on Distribution Shifts (DistShift) (*equal contribution)	3

Year	Publications	Citations
2021	**Emanuela Haller***, Elena Burceanu*, Marius Leordeanu."*Self-Supervised Learning in Multi-Task Graphs through Iterative Consensus Shift*". BMVA British Machine Vision Conference - BMVC 2021 (* equal contribution)	3
2023	Alina Marcu, Mihai Pirvu, Dragos Costea, **Emanuela Haller**, Emil Slusanschi, Nabil Belbachir, Rahul Sukthankar, Marius Leordeanu. "*Self-supervised Hypergraphs for Learning Multiple World Representations*". IEEE International Conference on Computer Vision - ICCV 2023 Workshop on Representation Learning with Very Limited Images	1
2023	Ştefan Smeu*, Elena Burceanu*, **Emanuela Haller***, Andrei Nicolicioiu. *"Environment-biased Feature Ranking for Novelty Detection Robustness"*. IEEE International Conference on Computer Vision - ICCV 2023 Workshop on Out Of Distribution Generalization in Computer Vision (* equal contribution)	0

Oana Mitrut – List of Publications

Google Scholar: https://scholar.google.com/citations?user=-yP2NgEAAAAJ&hl=en&oi=ao
Total number of citations: 901
H-index: 14

3 books

1 book chapter :

- Oana Mitrut, Alin Moldoveanu, Marius Leordeanu, A machine learning approach to automatic phobia therapy with virtual reality, in Modern Approaches to Augmentation of Brain Function, Editors: Ioan Opris, Mikhail A. Lebedev, Manuel F. Casanova, pp. 607-636 , Springer, https://doi.org/10.1007/978-3-030-54564-2 , 978-3-030-54564-2 **(9 citations)**

20 articles published in journals, from which we mention:

- Balan, O.; Moses, G.; Petrescu, L.; Moldoveanu, A.; Leordeanu, M.; Moldoveanu, F. Emotion Classification Based on Biophysical Signals and Machine Learning Techniques. Symmetry 2020, 12, 21. https://doi.org/10.3390/sym12010021 , Q2, IF = 2.7, **86 citations**

- Balan, O.; Moses, G.; Moldoveanu, A.; Leordeanu, M.; Moldoveanu, F. Fear Level Classification Based on Emotional Dimensions and Machine Learning Techniques. Sensors 2019, 19, 1738. https://doi.org/10.3390/s19071738 ., Q2, IF = 3.9, **62 citations**
- Balan, O.; Moses, G.; Moldoveanu, A.; Leordeanu, M.; Moldoveanu, F. An Investigation of Various Machine and Deep Learning Techniques Applied in Automatic Fear Level Detection and Acrophobia Virtual Therapy. Sensors 2020, 20, 496. https://doi.org/10.3390/s20020496 , Q2, IF = 3.9, **54 citations**
- Petrescu, L.; Petrescu, C.; Mitruț, O.; Moses, G.; Moldoveanu, A.; Moldoveanu, F.; Leordeanu, M. Integrating Biosignals Measurement in Virtual Reality Environments for Anxiety Detection. Sensors 2020, 20, 7088. https://doi.org/10.3390/s20247088 , Q2, IF = 3.9, **41 citations**

48 articles presented at conferences, of which 4 conferences in the Core A category at the time of publication. We mention the following:

- Oana Balan, Gabriela Moise, Alin Moldoveanu, Florica Moldoveanu, Marius Leordeanu, Does automatic game difficulty level adjustment improve acrophobia therapy?: differences from baseline. ACM Symposium on Virtual Reality Software and Technology VRST 2018: 78:1-78:2 – **11 citations**
- Balan, Oana; Moses, Gabriela; Moldoveanu, Alin; Moldoveanu, Florica; and Leordeanu, Marius, (2019). "Automatic adaptation of exposure intensity in VR acrophobia therapy, based on deep neural networks". In Proceedings of the 27th European Conference on Information Systems (ECIS), Stockholm & Uppsala, Sweden, June 8-14, 2019. ISBN 978-1-7336325-0-8 Research Papers – **10 citations**
- Bălan, O., Cristea, Ş., Moldoveanu, A., Moise, G., Leordeanu, M. & Moldoveanu, F. (2019). Towards a Human-Centered Approach for VRET Systems: Case Study for Acrophobia. In A. Siarheyeva, C. Barry, M. Lang, H. Linger, & C. Schneider (Eds.), Information Systems Development: Information Systems Beyond 2020 (ISD2019 Proceedings). Toulon, France: ISEN Yncréa Méditerranée.

Other articles at ISI conferences :

- Balan, O.; Cristea, Ş.; Moses, G.; Petrescu, L.; Ivaşcu, S.; Moldoveanu, A.; Leordeanu, M. Ether—An assistive virtual agent for acrophobia therapy in virtual reality. In Proceedings of the HCI International 2020—Late Breaking Papers: Virtual and Augmented Reality, Copenhagen, Denmark, 19–24 July 2020; pp. 12–25 – **8 citations**
- Bălan, O., Moise, G., Moldoveanu, A., Moldoveanu, F., Leordeanu, M. (2020). Classifying the Levels of Fear by Means of Machine Learning Techniques and VR in a Holonic-Based System for Treating Phobias. Experiments and Results. In: Chen, JYC, Fragomeni, G. (eds) Virtual, Augmented and Mixed Reality. Industrial and Everyday Life Applications. HCII 2020. Lecture Notes in Computer Science(), vol 12191. Springer, Cham. https://doi.org/10.1007/978-3-030-49698-2_24 - **2 citations**
- O. Bălan et al., "Sensors system methodology for artifacts identification in Virtual Reality games," 2019 International Symposium on Advanced Electrical and Communication Technologies (ISAECT), Rome, Italy, 2019, pp. 1-6, doi: 10.1109/ISAECT47714 .2019.9069719 – **4 citations**

Participations at workshops at A* ranked conferences:

- Oana Balan, Gabriela Moise, Alin Moldoveanu, Marius Leordeanu, Florica Moldoveanu. 2019. Challenges for ML-based Emotion Recognition Systems in Medicine. A Human-Centered Approach. CHI'19 Extended Abstracts, May 4-9, 2019, Glasgow, Scotland, UK. ACM CHI Conference on Human Factors in Computing Systems Workshop on Emerging Perspectives in Human-Centered Machine Learning.

Emil Slusanschi – List of Publications

Google Scholar: https://scholar.google.com/citations?user=1fwT6psAAAAJ&hl=en&oi=ao
Total number of citations: **503**
H-index: **12**

Most relevant 10 publications:

1. Self-supervised hypergraphs for learning multiple world interpretations. A Marcu, M Pirvu, D Costea, E Haller, E Slusanschi, AN Belbachir, R. Sukthankar, M. Leordeanu, Proceedings of the IEEE/CVF International Conference on Computer Vision, 983-992, 2023.
2. UFO Depth: Unsupervised learning with flow-based odometry optimization for metric depth estimation. V Licăret, V Robu, A Marcu, D Costea, E Sluşanschi, R Sukthankar, M. Leordeanu. 2022 International Conference on Robotics and Automation (ICRA), 6526-6532, 2022.
3. Semi-supervised learning for multi-task scene understanding by neural graph consensus. M Leordeanu, MC Pîrvu, D Costea, AE Marcu, E Slusanschi, Proceedings of the AAAI Conference on Artificial Intelligence 35 (3), 1882-1892, 2021.
4. Depth distillation: unsupervised metric depth estimation for UAVs by finding consensus between kinematics, optical flow and deep learning. M Pirvu, V Robu, V Licaret, D Costea, A Marcu, E Slusanschi, R. Sukthankar, M. Leordeanu, Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern, 2021.
5. Molecular Dynamics Simulations of DNA Adsorption on Graphene Oxide and Reduced Graphene Oxide-PEG-NH_2 in the Presence of Mg^{2+} and Cl^- ions. S. Muraru, C.G. Samoila, E.I. Slusanschi, J.S. Burns, M. Ionita. Coatings 10 (3), 289, 2020.
6. Roadmap generation using a multi-stage ensemble of deep neural networks with smoothing-based optimization. D Costea, A Marcu, E Slusanschi, M Leordeanu, Proceedings of the IEEE Conference on Computer Vision and Pattern, 2018.
7. Creating roadmaps in aerial images with generative adversarial networks and smoothing-based optimization. D Costea, A Marcu, E Slusanschi, M Leordeanu. Proceedings of the IEEE International Conference on Computer Vision, 2017.
8. ADiJaC--Automatic differentiation of Java classfiles. E.I. Sluşanschi, V Dumitrel, ACM Transactions on Mathematical Software (TOMS) 43 (2), 1-33, 2016.
9. Data hiding using steganography, MA Dagadita, EI Slusanschi, R Dobre, 2013 IEEE 12th International Symposium on Parallel and Distributed Computing – ISPDC, 2013.

10. Mapping data mining algorithms on a GPU architecture: a study. A Gainaru, E Slusanschi, S Trausan-Matu, Foundations of Intelligent Systems: 19th International Symposium, ISMIS 2011.
11.

Bogdan Alexe – List of Publications

Google Scholar: https://scholar.google.com/citations?user=t5JG-ScAAAAJ&hl=en&oi=ao
Total number of citations: **4197**
H-index: **12**

Prof. Bogdan Alexe published several papers in top Computer Vision journals (TPAMI, IJCV) and proceedings conferences (CVPR, ECCV, ICCV) and also in top Machine Learning conference (NIPS). Below there is a short selection:

1. Bogdan Alexe, Thomas Deselaers and Vittorio Ferrari: *Measuring the objectness of image windows*, published in IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2012. Citations on Google Scholar: 1570.

2. Bogdan Alexe, Thomas Deselaers and Vittorio Ferrari: *What is an object?* published in IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2010. Citations on Google Scholar: 1109.

3. Radu Tudor Ionescu, Sorina Smeureanu, Bogdan Alexe, Marius Popescu: Unmasking the Abormal Events in Video, published in International Conference on Computer Vision (ICCV), 2017. Citations on Google Scholar: 326.

4. Radu Tudor Ionescu, Bogdan Alexe, Marius Leordeanu, Marius Popescu, Dimtrios Papadopoulos, Vittorio Ferrari: *How hard can it be? Estimating the difficulty of visual search in an image*, published in IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2016. Citations on Google Scholar: 133

5. Lucian Bicsi, Bogdan Alexe, Radu Ionescu, Marius Leordeanu: *Joint Expert Distillation in a Semi-Supervised Multi-Dataset Student-Teacher Scenario for Video Action Recognition*. In: Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV) Workshops, 2023.

Section 9: Projects won by the team leader as Principal Investigator

For each project, we mention the project members that are also part of the current research Team. Please note that in 7 out of 10 projects won as PI by the Team Leader, there are 3-10 participants that are also part of the current research Team.

1. ELIAS: European Lighthouse of AI for Sustainability, Call ID: HORIZON-CL4-2022-HUMAN-02-02, Budget of UPB Partner: 250K Euro
   Team members: Marius Leordeanu (PI), Emil Slushanschi, Mihai Masala, Dragos Costea.
2. Google Research Gift Award, 2021, „Self-Supervised Multi-Task Hypergraphs", 50K US dollars.
   Team members: Marius Leordeanu (PI), Mihai Masala, Dragos Costea.
3. EEA and Norway Grant 2019-2022: EEA-RO-2018-0496 (1.5 Million Euro) "Spacetime Vision – Towards Unsupervised Learning in the 4D World"
   Team members: Marius Leordeanu (PI), Bogdan Alexe, Emil Slusanschi, Alina Marcu, Dragos Costea, Vlad Licaret, Mihai Pirvu, Mihai Masala, Ioana Croitoru, Vlad Bogolin
4. European Funds Grant 2015-2019: POC-A1.2.1D-2015-P39-287 (1 Million Euro) – „Automatic interpretation of images and video sequences using natural language processing" (PI with Traian Rebedea)
   Team members: Marius Leordeanu (PI), Alina Marcu, Dragos Costea, Vlad Licaret, Mihai Pirvu, Mihai Masala
5. UEFISCDI Grant PN-III-P4-ID-PCE-2020-2819, 2021-2023 (250K Euro), „HyperVision: Unsupervised Visual Learning through Intelligent Equilibrium in Hypergraphs of Neural Networks"
   Team members: Marius Leordeanu (PI), Alina Marcu
6. UEFISCDI Grant 2018-2020: PN-III-P1-1.2-PCCDI2017-0734 (1.7 Million Euro) „Robots and Society: Cognitive Systems for Personal Robots and Autonomous Vehicles" (I am the PI of the IMAR Partner). Team members: Marius Leordeanu (PI)
7. UEFISCDI Grant 2018-2020: TE-2016-2182 (100K Euro) « Vision in Words : Automatic Linguistic Description of Objects, People and their Interactions in Indoor Videos"
   Team members: Marius Leordeanu (PI), Ioana Croitoru, Vlad Bogolin
8. UEFISCDI ERC-like Grant 2016-2018: ERC-2016-0007 (170K Euro) "The Classifier Graph: A Recursive Multiclass Network for Deep Category Recognition in Images and Video". Team members: Marius Leordeanu (PI), Ioana Croitoru, Vlad Bogolin
9. UEFISCDI Grant 2016-2018: PED-2016-1842 (105K Euro) "Automatic linguistic descriptions of objects, people and their interactions in indoor videos".
   Team members: Marius Leordeanu (PI), Bogdan Alexe, Ioana Croitoru, Vlad Bogolin, Emanuela Haller
10. UEFISCDI Grant 2012-2016: PCE-2012-4-0581 (300K Euro), "Automatic Video Understanding at Middle and Higher Levels of Interpretation".
    Team members: Marius Leordeanu (PI)

Section 10: Patents Published by the Team Leader

Authors that are also part of the current team are underligned.

Granted US Patents (Published)

Marius Leordeanu, Alina Marcu, Iulia Muntianu, Catalin Mutu, *Automatic detection, counting, and measurement of lumber boards using a handheld device*. U.S. Patent 11,216,905. 2022

Marius Leordeanu, Iulia Muntianu, Dragos Costea, and Catalin Mutu, *Automatic detection, counting, and measurement of logs using a handheld device*. U.S. Patent 11,189,022. 2021

Marius Leordeanu, Vlad Licaret, Tudor Buzu, Iulia Muntianu, Catalin Mutu, 2020. *Automatic detection, counting, and measurement of lumber boards using a handheld device*. U.S. Patent 10,586,321. 2020 (3 citations)

US Patent Applications

Elena Burceanu, Emanuela Haller, Marius Leordeanu, Prejbeanu, R. and Cernat, C.D., Bitdefender IPR Management Ltd, 2023. *Computer Security Systems and Methods Using Self-Supervised Consensus-Building Machine Learning*. U.S. Patent Application 17/656,644. 2023