

## Curriculum Vitae

### Overview

Particulars	Date of birth Nationality	Romanian and German
Current activity		Professor University POLITEHNICA of Bucharest – UPB Visiting Professor $\Phi$ -Lab, European Space Agency (ESA)
University Degrees		Dipl.-Ing. and Doctor Engineer in Electronics, Polytechnic Institute of Bucharest, Romania Habilitation in Computer Science, University Louis Pasteur, Strasbourg, France
Experience	Management	Director of Research Center at UPB Team Leader at DLR Coordinator of the Competence Center DLR-CNES Project Management
	Expertise	Electronics and Telecommunications, Computer Science, Signal Processing, Theory of Information Transmission, statistics, Machine Learning, Artificial Intelligence, Data Science, Radar and SAR systems, EO multi-mission systems architecture design and technology, Big Data Mining and Analytics, Quantum algorithms
	Additional Activities	Member of ESA's: IPC, PB-EO (representing Romania), and Big Data from Space Working Group; Directing Ph.D. and M.S. theses; IEEE GRSS Distinguished Lecturer; Journals co-editor; Reviewer of science & engineering institutions, programs, projects and articles
	Summary of publications	Theses: 2 (Ph.D. and habilitation) Articles in peer reviewed journals: 166 in preparation 3 Articles in conference proceedings: more than 400 Books: 3, chapters 21, books under work 1 Other articles: more than 100 Invited conferences, key notes, tutorials: 182 H-Index: Google Scholar 43
Languages	English	fluent
	French	fluent
	German	fluent
	Spanish	fluent
	Romanian	mother tongue

### Working Experience

1990 – present	Professor, Faculty of Electronics, Telecommunications and Information Technology	University POLITEHNICA of Bucharest UPB, Romania
1993 – 2023	The Senior Scientist of the Remote Sensing Technology Institute – IMF and Team Leader Data Intelligence and Knowledge Discovery (presently PhD director)	German Aerospace Center - DLR, Germany
2020 – 2021	Delegate, DLR-ONERA Joint Virtual Center for AI in Aerospace	French Aerospace Lab ONERA Paris, France
2018 – 2020	<i>Chaire d'excellence internationale Blaise Pascal</i> on EO Data Science	CNAM, Paris, France
2011 – 2019	Head, Immersive Visual Information Mining TUM-DLR Joint Lab	Munich Aerospace Faculty Munich, Germany
2011 – present	Director, Research Center for Spatial Information	UPB Bucharest, Romania
2005 – 2013	Professor, CNES/DLR Chair for Information Image Understanding for Earth Observation and Coordinator of CNES/DLR/ <i>Télécom</i> Competence Center	Paris Institute of Technology <i>Télécom</i> Paris, France
1992 – 2004	Invited Professor, Dept. Image Science, Institute for Communication Technology	Swiss Federal Institute of Technology ETH Zurich, Switzerland
1990 – 1992	Director, Research Centre for Space <i>Teleinformatics</i>	UPB Bucharest, Romania
1981 – 1990	Assistant/Associate Professor, Faculty of Electronics and Telecommunications	UPB Bucharest, Romania
1978 – 1981	Scientist	Electrical Research Institute – ICPE, Bucharest, Romania

### Education

1999	Habilitation in Computer Science	University <i>Louis Pasteur</i> Strasbourg, France
1986	Doctor Engineer in Electronics	Polytechnic Institute of Bucharest, Romania
1978	Dipl.-Ing. in Electronics and Telecommunications (first from 350 students)	Polytechnic Institute of Bucharest, Romania

## Projects

2023-2027	EuroQCS-France, EUROHPC-2022-CEI-QC-01, Co-investigator
2023-2025	Competence Center for Climate Change Digital Twin for Earth forecasts and societal redressment: DTEClimate, in the frame of Romania National Recovery and Resilience Plan, Project Manager and PI
2023-2025	ESAWAAI - Explainable SAR measurements for Wind Assessment with Artificial Intelligence, Co-investigator
2023-2024	ARTISTE, ESA, Co-investigator
2022-2024	SARWAVE, ESA, Co-investigator
2021-2022	BULPP: Bulk Processing Via Parallel Computing, ESA, Co-investigator
2021-2024	QT STRAT: National Strategy for Quantum Communications, Romanian Mistry of Education, Co-investigator
2022-2024	QUANTEC: Implementation of the National Reference Center for Quantum Communications, Romanian Mistry of Education, Co-investigator
2021-2024	Aerial Data Fusion and Remote Sensing System for Emergency Situations, Romanian Mistry of Education, Co-investigator
2021-2024	BDAGeoINT: Actionable Intelligence from Big Geospatial Data, Romanian Mistry of Education, Co-investigator
2021-2025	DRAGON 5: Large-Scale Spatial-Temporal Analysis for Dense Satellite Image Series with Deep Learning, ESA-NASCC, PI
2021-2023	CENTURION: Copernicus DataCube/ AI DataCube Services for Society, Industry and new Market Generation H2020, Co-investigator
2021-2023	xAI: Explainable Deep Learning for Earth Observation, Exploratory Research Project, PCE-2020, Project Manager and PI
2019-2023	MENELAOS_NT, European Training Network (ETN) on Multimodal Environmental Exploration Systems – Novel Technologies, H2020-MSCA-ITN-2019, UPB Co-investigator
2019-2021	ExtremeEarth: From Copernicus Big Data to Extreme Earth Analytics, H2020, DLR Co-investigator
2019-2022	AI4EU: A European AI On Demand Platform and Ecosystem, H2020, DLR Project Manager and Co-investigator
2018-2021	CANDELA: Copernicus Access Platform Intermediate Layers Small Scale Demonstrator, H2020, DLR Project Manager and Co-investigator
2017-2020	Computational Technologies: Feasibility Studies of Quantum Enabled Annealing Algorithms for Estimating Terrestrial Carbon Fluxes from OCO-2 and the LIS Model, NASA Advanced Information Systems Technology Program, Co-investigator
2017-2022	Automated Scientific Discovery, Information und Data Science, HGF Helmholtz-Gemeinschaft, DLR Project Manager and Co-investigator
2015-2018	BigSkyEarth - Big Data Era in Sky and Earth Observation, COST action, Co-investigator
2015-2018	C-TEP - Costal Environment Thematic Exploitation Platforms, ESA, DLR Project Manager and Co-investigator
2015-2018	ECOPOTENTIAL - improving future ecosystem benefits through earth observations, H2020, DLR Project Manager and Co-investigator
2013- 2017	SpaceTech - Competence Centre for Smart Sensors and Big Data Technology for Space Applications, Romanian Space Agency (ROSA) grant, Project Manager
2013- 2016	BIO-SAR - Terrestrial P-band synthetic aperture radar for biomass mapping, Romanian Space Agency (ROSA) grant, Project Manager
2012 -2016	GRADIS - Ground-based RADAR for Very Precise Displacement Measurements, Romanian Ministry of National Education grant, Project Manager

- 2012 -2016 GEODIM - Platform for Geo-Information in Support of Disaster Management, Romanian Ministry of National Education grant, Co-investigator.
- 2012 -2016 DGI-SAR - Space borne Multiple Aperture Interferometry and Sequential Patterns Extraction Techniques for Accurate Directional Ground and Infrastructure Stability Measurements, Romanian Ministry of National Education grant, Co-investigator.
- 2012 - 2016 TOMOSAR - Enhancing 4-dimensional Synthetic Aperture Radar Measurements, Romanian Ministry of National Education grant, Project Manager
- 2012 - 2015 THz Imaging - Compressive THz Imaging and Hadamard Spectroscopy for Space Applications, Romanian Space Agency (ROSA) grant, Co-investigator
- 2012 - 2015 BISTATIC PSI - Bistatic SAR Demonstrator for PS Interferometry using a Fixed-Receiver Configuration, Romanian Space Agency (ROSA) grant, Co-investigator
- 2012-2015 DCA-WSN - Distributed Coding Algorithms for Energy Saving in Wireless Sensor Networks Applications, Romanian Space Agency (ROSA) grant, Co-investigator
- 2012- 2015 CONCEDE - Content Based Query Concept for Exploration and Discovery of Information in Earth Observation and Medical Libraries, Romanian Space Agency (ROSA) grant, Co-investigator
- 2012 - 2015 LEO-SITS - Long term data exploitation for Satellite Image Time Series - Extraction of Classes for Scene Dynamics, Romanian Space Agency (ROSA) grant, Co-investigator
- 2011 – 2017 EOLib - Earth Observation Librarian, ESA, Principal Scientist
- 2010 – 2013 TELEIOS - Virtual Observatory Infrastructure for Earth Observation Data, EC-FP7, DLR Project Manager
- 2010 – 2012 OBSERVE - Strengthening and development of Earth Observation activities for the environment in the Balkan area, EC-FP7, DLR Project Manager
- 2009 – 2011 KEO - Demonstrator with Models for Land Use Management KLAUS, ESA, Co-investigator, DLR Project Manager
- 2009 – 2010 KIM - Extensions and Installations, ESA, Co-investigator, DLR Project manager
- 2008 – 2011 RoKEO - Romanian Knowledge Centered Earth Observation, (Romanian Space Agency - ROSA and ESA PECS) - Principal Scientist and Project Manager
- 2008 – 2011 TargetSAR- Intelligent applications for SAR Systems in the field of electronic research (Romanian Ministry of Education and Research), Principal Scientist and Project Manager
- 2007 – 2009 IIM-ITS - Information Mining in Satellite image Time Series, Co-investigator, DLR Project Manager
- 2007 – 2009 Primitive descriptors for indexing high resolution satellite images, Principal Scientist
- 2007 – 2010 GeoINF - Geoinformation Search Engine Prototype, (Romanian Ministry of Education and Research) - Principal Scientist and Project Manager
- 2007 – 2010 RoSAR - New applications of Synthetic Aperture Radar SAR data, (Romanian Ministry of Education and Research), Principal Scientist and Project Manager
- 2007 – 2010 SIGUR - Satellite Based Emergency Response Services, (Romanian Ministry of Education and Research), Principal Scientist and Project Manager
- 2006 – 2010 SEOKIM - Expert system for natural risk management, (Romanian Ministry of Education and Research), Principal Scientist and Project Manager
- 2005 – 2010 Information Extraction and Image Understanding for Earth Observation, (German Aerospace Center- DLR and French Space Agency-CNES), Principal Scientist and Project Manager
- 2005 – 2009 PIMS - Partner Information Mining System, ESA, Principal Scientist and Project Manager
- 2005 – 2009 KEO, Knowledge Centered Earth Observation, ESA, Principal Scientist and DLR Project Manager
- 2005 – 2006 SatEXPLORE - Methods and Pilot system for Risk Management based on EO data, Romanian Space Agency (ROSA) grant, Principal Scientist
- 2004 – 2008 STREAM - Technology to Support Sustainable Humanitarian Crisis Management, EC-FP-6, Co-investigator

- 2003 – 2005 KIMV - Knowledge Driven Information Mining Validation, ESA, Principal Scientist and Project Manager
- 2002 – 2005 KES - Knowledge Enabled Services, ESA, Principal Scientist, DLR Project Manager
- 2002 – 2005 PRESENSE - algorithms and system for high resolution remote sensing image analysis for monitoring gas pipelines, EC-FP5, Co-investigator
- 2002 – 2005 SMART - algorithms and system for high resolution airborne image analysis for detection of mine fields, EC-FP5, Co-investigator
- 2001 – 2005 Image Information Mining and Scene Understanding for Satellite Images, (German Aerospace Center- DLR and French Space Agency-CNES) - Principal Scientist and Project Manager
- 2001 – 2002 KIM - Knowledge Driven Information Mining, ESA, Principal Scientist and Project Manager
- 2001 – 2004 Knowledge Discovery & Data Mining Based on Hierarchical Segmentation of Images, Intelligent data Understanding IDU, NASA, Co-investigator
- 2001 – 2004 Virtual-Planet - integration of image analysis and synthesis for enhanced virtual reality, EC-FP5, Co-investigator and DLR Project Manager.
- 2000 – 2002 SRTM - Shuttle Radar Topography Mission, Algorithms development for InSAR filtering, phase unwrapping and SAR image registration, DLR and JPL-NASA, Co-investigator
- 1998 – 2001 Model-Based Remote Sensing Image Analysis for Snow Segmentation in Mountainous Areas, (Swiss National Funds for Scientific Research – FNS) - Principal Scientist
- 1996 – 2000 Advanced Query and Retrieval Techniques for Remote Sensing Image Databases, (Swiss Federal Institute of Technology - ETH Zurich) - Principal Scientist
- 1996 – 2000 Security Relevant Earth Observation, DLR, Principal Scientist
- 1995 – 1997 Remote Sensing Scene Understanding by Model-Based Interpretation Techniques, (Swiss National Funds for Scientific Research - FNS) - Principal Scientist
- 1994 – 2005 Algorithms for Information Extraction and Scene Understanding for high resolution Synthetic Aperture Radar SAR and interferometric SAR sensors. Multi-sensor data and information fusion, DLR, Principal Scientist and Coordinator
- 1994 – 1996 Analysis of the Remotely Sensed Data Using 3D Signal Processing Techniques, (Swiss National Funds for Scientific Research - FNS) - Principal Scientist
- 1993 – 1995 Integrated image compression and sensor calibration for the MARS'96 high resolution stereo camera, DLR, Principal Scientist
- 1993 – 1994 Contributions to the Settlement of Remote Sensing Activities at the Center for Space Teleinformatics (CTS), University Politehnica Bucharest, Swiss National Funds for Scientific Research (FNS) - Principal Scientist
- 1993 – 1994 The 3D Analysis of Multivariate Images in the Transformed Space, (Swiss National Funds for Scientific Research - FNS) - Principal Scientist
- 1993 – 1995 Multiprocessors-multidisc information storage systems, (Swiss National Funds for Scientific Research - FNS) - Principal Scientist
- 1988 – 1991 Algorithms and system for mechanical vibration identification using Electronic Speckle Interferometry ESPI, (Electric Research Institute Bucharest), Principal Scientist and Project Manager
- 1988 – 1989 Software for ecographic image processing, (*Colentina* Hospital, Bucharest), Principal Scientist and Project Manager
- 1987 – 1988 Hardware and software for infrared image acquisition, (Computer Factory Bucharest) - Principal Scientist and Project Manager
- 1986 – 1988 Image processing and pattern recognition algorithms and system for robot vision, (Mechanic R&D Institute Bucharest - Principal Scientist and Project Manager
- 1984 – 1986 Automatic digital image analysis system SAADI, (Computer Factory and Electric Research Institute Bucharest) - Principal Scientist and Project Manager

1981 – 1985 Image processing system for microscope analysis, (Electric Research Institute Bucharest)  
- Principal Scientist and Project Manager

#### Invited Professor Positions

2020-present  $\Phi$ -Lab, European Space Agency (ESA)  
2022 Wuhan University, EIS-WHU Summer School International 2022-Online Course, China  
2017 Chinese Academy of Science, Shenyang Institute of Automation, China  
2014 University of Trento, Italy  
2008 – 2010 Dept. Signal and Communication Theory, University of Alcalá, Spain  
2008 – 2010 Dept. Computer Science, University Tor Vergata, Rome, Italy  
2007 Dept. Signal, Systems and Radio-communication, University *Politecnica* Madrid, Spain  
2003 – 2007 Dept. Geo-informatics, *Universidad Pontificia de Salamanca, campus de Madrid*, Spain  
2003 – 2007 Dept. Bio-informatics, University of Camerino, Italy  
2003 Center for Sensor Systems - ZESS, University of Siegen, Germany  
2000 – 2002 Dept. Compute Science, University Louis Pasteur, Strasbourg, France  
2000 – 2002 International Space University - ISU, Strasbourg, France  
1994 Swiss Center for Scientific Computing - CSCS, Manno, Switzerland  
1991 – 1992 Faculty of Mathematics, University of Oviedo, Spain

#### Teaching summary

- Theory of Information Transmission
  - Decision and Estimation Theory
  - Data communication
  
- Image Information Mining
  - Image Analysis
  - Data Mining and KDD
  
- Remote Sensing Technology
  - Geo-information Theory and Engineering
  - RADAR systems and SAR processing and applications
  
- Artificial Intelligence
  - Artificial Intelligence for Earth Observation
  - Deep Learning and applications in Earth Observation

#### Directing Ph.D. and M.S. theses summary

**Directing 63 Ph.D. Theses** defended at the Swiss Federal Institute of Technology ETH Zurich (Switzerland), University of Siegen (Germany), ParisTech Telecom Paris (France), Technical University Berlin (Germany), Technical University Munich (Germany), Beijing Institute of Technology (China), China Academy of Science (CAS), Technical Military Academy Bucharest (Romania), University POLITEHNICA of Bucharest (Romania)

The **thematic** of the Ph.D. are in the fields of data science, information theory, statistical modeling, Bayesian inference, machine learning, quantum algorithms, information mining and image understanding and deep learning with applications to information extraction and

understanding of high resolution Synthetic Aperture Radar SAR and optical Earth Observation data.

#### **Directing 93 M.S. Theses**

In the fields of Data Mining, theory and algorithms for image analysis, pattern recognition, computer graphics, visualization, image compression, coherent imaging, circuits and systems for real time image and video processing, microprocessor systems for data acquisition.

#### **Publications summary**

- Theses: 2 (Ph.D. and habilitation)
- Articles in peer reviewed journals: published 166 in press 3
- Articles in conference proceedings with peer review: more than 400
- Books: published 3, chapters published 21, books under work 1
- Other articles in conference proceedings or presentations: more than 100
- Invited conferences, key notes, tutorials: 182
- H-Index: Google Scholar 43

#### **Honors and awards**

2022	<i>IEEE GRSS David Landgrebe Award</i> in recognition of outstanding contributions to Earth Observation analysis using innovative concepts for big data analysis, image mining, machine learning, smart sensors, and quantum resources
2018	<i>Ad Astra Award</i> for Excellence in Science
2018-2022	<i>IEEE Geoscience and Remote Sensing Distinguished Lecturer for AI in Earth Observation.</i>
2017	<i>Blaise Pascal International Chair of Excellence</i> for recognition in the field of Data Science in Earth Observation, with the <i>Centre d'Etudes et de Recherche en Informatique (CEDRIC)</i> at the <i>Conservatoire National des Arts et Métiers (CNAM)</i> in Paris.
2013	<i>IEEE Fellow, Computer, Signal Processing and Geoscience and Remote Sensing Societies (for contributions to information mining of high resolution synthetic aperture radar and optical earth observation images)</i>
2010	<i>DigitalGlobe 8 bands</i> competition Prize
2008	<i>National Order of Merit with the rank of Knight</i> , for outstanding international research results, awarded by the President of Romania
2006	<i>Best Paper Award</i> , IEEE Geoscience and Remote Sensing Society Prize
2006	<i>IEEE Italian chapter prize Gold student paper</i>
2000	<i>DLR Seniorwissenschaftler (Senior Scientist)</i> for activities in Information Theory, Image Analysis, Image Information Mining
2000	<i>DLR diploma of merit</i> for the activities in the fields of Synthetic Aperture Radar (SAR) and SAR Interferometry in the project Shuttle Radar Topography Mission (X-SAR/SRTM)
1987	<i>Romanian Academy Prize Traian Vuia</i> awarded for the development of SAADI image analysis system and activity in image processing
1977/78	<i>Best student Republican Fellowship</i>
1975	<i>Award from the National Students Contest in Theoretical Physics.</i>

### Selected Memberships and Functions

From 2022	Member of the NATO Science for Peace and Security (SPS) Programme's 'Independent Scientific Evaluation Group' (ISEG)
From 2020	Panel member, National Council for Attestation of University Degrees, Diplomas and Certificates (CNATDCU)
From 2021	Associate Editor IEEE GRSL and IEEE JSTARS
2021-2023	Guest Editor Special Issue on "Quantum resources for Earth Observation", IEEE JSTARS
2020-2021	Guest Editor "Explainable AI4EO Training and Benchmarks: data sets methodologies and tools" A GRSL special stream
2019-2020	Guest Editor, MDPI Remote Sensing Special Issue "Content-Based Remote Sensing Image Retrieval"
2019	Co-organizer Workshop „Quantum Algorithms“ Nov. 18, Cyber Defense Institute, <i>Bundeswehr</i> University Munich
2018	Guest Editor, Special Issue: Information Processing for Unmanned Aerial Vehicles (UAVs) in Surveying, Mapping, and Navigation, Geo-spatial Information Science
2015	Guest Editor, Management and Analytics of Remotely Sensed Big Data, SPIE
From 2014	Co-organizer of the ESA Big Data From Space BiDS conference
From 2013	Member of the ESA's Big Data from Space BiDS Working Group
From 2012	Member of the council of the Doctoral School, Faculty of Electronics, Telecommunications and Information Technology, UPB
2011- 2017	Member of ESA's IPC, PB-EO and DOSTAG (representing Romania)
From 2009	International Editorial Board Member, International Journal of Image and Data Fusion, Taylor & Francis
From 2009	Organizer and Co-chair of the joint GEOSS Workshop and Summer School on Innovative Data Mining Techniques in Support of Global Earth Observations
2008 - 2012	Member of the NATO Science for Peace & Security Panel
2008 -2010	Guest Editor, IEEE Geoscience and Remote Sensing Letters, Special Issue on Image Information Mining: Pursuing Automation of Geospatial Intelligence for Environment and Security
2006 - 2007	Guest Editor, IEEE Transactions on Geoscience and Remote Sensing, Special Section on Image Information Mining for Earth Observation Data
2004	Chair and organizer of the special session on Understanding high resolution satellite images, at ACIVS 2004 Advanced Concepts for Intelligent Vision Systems Aug. 31-Sept. 3, 2004, Brussels, Belgium.
2003-2013	Member of the ESA's Image Information Mining Coordination Group IIMCG
From 2003	Member of the IEEE Data Archiving Working Group
From 2003	Member of the Scientific Council of the International Postgraduate Program IPP, ZESS - Zentrum für Sensorsysteme, University of Siegen, Germany
2002	Organizer and chair of the 1 <sup>st</sup> Image Information Mining Workshop, Zurich 19.09.02
From 2002	Chair and organizer of the conference: Theory and Applications of Image Information Mining, ESA-SatCen-JRC, with the support of IEEE GRS society
2000 - 2009	Organizer and chair of the yearly DLR-CNES (CCT) Workshop on information extraction from high resolution SAR and optical EO images
From 1998	On yearly base, Organizer and Chair or Co-chair of IGARSS special sessions on information extraction from high resolution SAR images, and Image Information Mining



From 1998	Reviewer of national/international projects or Institutions in fields related to SAR and EO (Belgium, Israel, Italy, Romania, Spain)
1998 – 2006	Participant at the NATO SET/TG.14 working group Advanced Millimeterwave Techniques for Ground Target Acquisition
From 1997	On yearly base Chair or Co-chair of IGARSS sessions on SAR, Image analysis, Compression, or related topics
1996 – 1998	Member of the CEOS Working Group on Calibration and Validation - SAR Subgroup
1995 – 1998	Member of the ISPRS working group for SAR image interpretation
From 1993	Reader and jury member for Ph.D. and Habilitation theses at several Universities in Europe (France, Germany, Italy, Romania, Slovenia, Spain), an average of 2 theses/year
From 1993	Reviewer of international journals (IEEE Tr. on Geoscience and Remote Sensing, IEEE Tr. on Image Processing, IEEE Tr. on Pattern Analysis and Machine Intelligence, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, IEEE Geoscience and Remote Sensing Letters, IEEE Tr. on Neural Networks, Pattern Recognition Letters, International Journal of Remote Sensing, IET, etc.)
1993 – 2000	Member of the ESA Working Group on Data Compression
1990	Diplomatic representative of Romania at the United Nations Committee on the Peaceful Uses of Outer Space, COPOUS - New York
1986 – 1991	Representative of the Faculty of Electronics and Telecommunications to the University Senate, Polytechnic Institute Bucharest, Romania
1984 – 1991	Member of the Professorate Council, Faculty of Electronics and Telecommunications, Polytechnic Institute Bucharest, Roman

#### **Invited lectures and tutorials**

1. AI for Earth Observation 30 Jan. 2023, Digital University Kerala Seminar, IEEE GRSS Distinguished Lecture
2. Quantum Computing for Earth Observation, 28/29 Jan. 2023, MIGARS 2023 Hyderabad, Keynote
3. Physics Informed Artificial Intelligence and Quantum Machine Learning for Earth Observation, 70th University Anniversary of China University of Geoscience (Wuhan), Nov. 12, 2022, invited lecture (8080 attendees)
4. Artificial Intelligence and Quantum Computing for EO: Towards the Digital Twin Earth, Aug 19, 2022, University of Missouri, invited lecture
5. Physics Guided and Quantum Artificial Intelligence for Earth Observation: towards the Digital Twin Earth, IGARSS 2022, 17 July, Kuala Lumpur, full day tutorial
6. AI for Earth Observation, National University of Singapore NUS, 26 July, invited lecture
7. Quantum computing for Earth Observation, Nanyang Technological University - NTU Singapore, 27 July 2022, invited lecture
8. Advanced signal processing and AI for SAR, Nanyang Technological University - NTU Singapore, 27 July 2022, invited lecture
9. Earth Observation Data Science: particularities and challenges, Indian Society of Remote Sensing (ISRS), Hyderabad Chapter, June 23, 2022, virtual
10. Earth Observation Data Science: particularities and challenges, Indian Society of Remote Sensing (ISRS), Hyderabad Chapter, June 23, 2022, virtual

11. Quantum computing - Results and Perspectives in Earth Observation, SONDRRA 5<sup>th</sup> Workshop, June 15, 2022, Avignon, France
12. Artificial Intelligence for Digital Twin Earth, SONDRRA 5<sup>th</sup> Workshop, June 15, 2022, Avignon, France
13. Physics Guided AI: Hybrid paradigms and Quantum Machine Learning for EO, IEEE GRSS Chapter jointly with Computer Society and SPSS Chapter of Gujarat Section "Winter School on Advances in Deep Learning for Multimedia signal Processing", March 5, 2022, virtual
14. Earth Observation Big Data Intelligence: theory and practice of deep learning and big data mining, Deep Learning in Earth Science Workshop 2022, State key laboratory of remote sensing science, Chinese Academy of Sciences, Beijing, January 8, 2022, virtual
15. AI4EO: from physics guided paradigms to quantum machine learning InGARSS 2021, December 9, 2021, virtual
16. AI4EO: from physics guided paradigms to quantum machine learning, Hunan University, IEEE GRSS Distinguished Lecture, IEEE GRSS Changsha Chapter, November 18, 2021, virtual
17. Artificial Intelligence for Earth Observation, IEEE GRSS Distinguished Lecture, Front Range Geoscience and Remote Sensing Society of the IEEE, October 21, 2021, virtual
18. Earth Observation Data Intelligence and Knowledge, Discovery, IEEE GRSS Distinguished Lecture, GRSS Kolkata Chapter in collaboration with GRSS Bombay Chapter, September 25, 2021, virtual
19. Machine Learning meets Computational Imaging: Artificial Intelligence for Earth Observation, 2021 IEEE International Conference on Image Processing ICIP, September 19, 2021, Anchorage, Alaska, virtual
20. Remote-sensing: Data mining for assessing environmental impacts, Deltas & Wetlands" DDNI Scientific Event Community, 28-th edition, Deltas & Wetlands DDNI International Symposium, Tulcea, September 13 - 18, 2021
21. Artificial Intelligence for Earth Observation, IEEE GRSS Distinguished Lecture, IEEE Geoscience and Remote Sensing Society ACT and NSW Chapter, Canberra, Australia, 17 August 2021, virtual
22. Artificial Intelligence for Earth Observation, IEEE GRSS Distinguished Lecture, IEEE CIS/GRSS JT. CHAPTER HYDERABAD, 31 July 2021
23. Big Data from Space, panel and key note, International Space University ISU, Alumni Conference, 30 July 2021 virtual
24. Artificial Intelligence for Earth Observation, IEEE GRSS Distinguished Lecture, 2021 IEEE Geoscience and Remote Sensing Society Summer School (GR4S) on Modeling in Microwave and Optical Remote Sensing Beijing Normal University (China), 20th July 2021 (9705 identified participants)
25. Explainable AI for Earth Observation, Open Science Innovation in PhD programme through Earth Observation: toward next career skills development InnEO Summer School, 19 July 2021, Brasov, Romania
26. From Big EO Data to Digital Twins: Hybrid AI and Quantum based Paradigms, tutorial IGRSS 2021, 10 and 11 July, 2021, (virtual)
27. Explainable Deep Learning: Paradigms for Earth Observation. XXIVth ISPRS Congress, 8 July 2021, virtual
28. Computer Vision and beyond: Pattern Recognition for Satellite Images, IEEE Conference on Computer Vision and Pattern Recognition CVPR 2021, (with Yuliya Tarabalka and Devis Tuia), 19th June, 2021 (Virtual)

29. AI4SAR: An Overview, ONERA - Fort de Palaiseau - 91120 Palaiseau, Conf@rence Jitsi, June 8, 2021
30. From HPC to Quantum paradigms in Earth Observation, Summer School High-Performance and Disruptive Computing in Remote Sensing (HDCRS) Working Group- HDCRS IEEE Geoscience and Remote Sensing Society (GRSS), Earth Science Informatics (ESI) Technical Committee, 1<sup>st</sup> June, 2021, (virtual)
31. Physics aware explainable AI for Earth Observation, 17.12.2020 CNAM, Paris (virtual)
32. Earth Observation Big Data Intelligence: Theory and Practice of Deep Learning and Big Data Mining, tutorial, IGARSS 2020, 26 Sept., (with Feng Xu, Akira Hirose), (virtual)
33. Quantum Machine Learning: Earth Observation Challenges, International Workshop on: "Quantum computing and Quantum engineering", 21 Sept, 2020, Dardanos,Çanakkale Turkey (virtual)
34. Earth Observation Data Science and Beyond, in the frame of Blaise Pascal International Chair Febr. 18, 2020, CNAM, Paris
35. Satellite Image Time Series, 31.01.2020, National Institute of Geographic and Forest Information, (IGN), Paris (in the frame of Blaise Pascal International Chair)
36. Earth Observation Big Data Challenges: the AI change of paradigm, AI4EU Café on Jan 29th, 2020 Live Webinar
37. Explainable Deep Learning: Paradigms for Earth Observation, Jan. 28th, 2020, IEEE GRSS Live Webinar Series, IEEE.tv Live
38. Compression Based Pattern Recognition: Data Content Communication Channels, in the frame of Blaise Pascal International Chair, 23<sup>rd</sup> Jan. 2020, Paris, France.
39. AI & Earth Observation, AI4OAC: workshop on AI for Ocean, Atmosphere and Climate Dynamics 20<sup>th</sup> Jan 2020 ,Brest, France
40. Satellite Image Time Series Analysis, in the frame of Blaise Pascal International Chair, 19 Nov 2019, Paris, France.
41. EO Big Data Mining: AI paradigms, tools and applications. *Neue Perspektiven der Erdbeobachtung* Symposium, 13th Nov. 2019, Cologne, Germany. (with Dr. Corneliu Octavian Dumitru)
42. Space technology: the change of paradigm, The semi-centenary of the Romanian research in micro-nano electronics and prospects for the evolution of the field, Romanian Academy, 19th Sept. 2019, Bucharest, Romania.
43. EO Spatio-Temporal Patterns Extraction, Key note, MULTITEMP19, Conference, 6 August 2019, Shanghai, China
44. AI4SAR: science and technology, Key note, BIGASRDAT19 Conference, 5 August 2019, China Academy of Science CAS, Beijing, China
45. Earth Observation Big Data Intelligence: theory and practice of deep learning and big data mining, tutorial, IGARSS 2019, 28nd July 2019, Yokohama, Japan (with Akira Hirose and Feng Xu)
46. AI4EO, IIT Bombay Diamond Jubilee lecture series, IEEE GRSS DL, February 27, 2019, India
47. Artificial Intelligence for Very High Resolution Earth Observation: Environment Monitoring, Sorbonne Université, April 5th, 2019, Paris, France (in the frame of Blaise Pascal International Chair)
48. Artificial Intelligence Training and Benchmarking for Earth Observation: Data Sets and Procedures CNAM, 29 Nov., 2018, Paris, France (in the frame of Blaise Pascal International Chair)

49. Big SAR Data Science: Physics based Machine Learning and Artificial Intelligence, IET Radar, 16<sup>th</sup> Oct. 2018, Nanjing, China
50. Earth Observation Data Intelligence and Knowledge Discovery, Beijing Institute of Technology BIT, 15<sup>th</sup> Oct. 2018, Beijing
51. Artificial Intelligence for Earth Observation, Conference of China Academy for Space Technology CAST, 11<sup>th</sup> Oct. 2018, Beijing, China
52. Machine Learning meets Computational Imaging: Big Data Analytics for Earth Observation, IEEE International Conference on Image Processing ICIP2018, 7<sup>th</sup> Oct. 2018, Athena, Greece.
53. Quantum Machine Learning: Earth Observation Challenges, DLR Workshop on Quantum Computing for Applications in Science and Industry, 2<sup>nd</sup> Oct. 2018m Köln, Germany
54. Earth Observation Big Data Intelligence: the paradigm shift, Advanced Concepts for Intelligent Vision Systems Acivs 2018, 25<sup>th</sup> Sept. Poitiers, France
55. Earth Observation Big Data Intelligence: theory and practice of deep learning and big data mining, tutorial, IGARSS 2018, 22nd July 2018, Valencia, Spain (with Feng Xu)
56. The Earth Observation Sensory Gap: from Bayesian Inference to Deep Learning, TerraData Workshop: ESIEE, 25<sup>th</sup> June, 2018, Marne la Vallée, France (in the frame of Blaise Pascal International Chair)
57. Deep Learning for Earth Observation, Joint ONERA – CNAM Workshop, 5<sup>th</sup> April, 2018, ONERA Palaiseau, Paris, France (in the frame of Blaise Pascal International Chair)
58. AI4SAR: Artificial Intelligence for Synthetic Aperture Radar, Centrale-Supélec, 4th May, 2018, Paris, France (in the frame of Blaise Pascal International Chair)
59. Earth Observation Data Science: particularities and challenges, 9th March, 2018, CNAM, Paris, France (in the frame of Blaise Pascal International Chair)
60. Big SAR Data, Key note, BIGASRDAT17 Conference, 13 Nov 2017, China Academy of Science CAS, Beijing, China
61. Advanced SAR data understanding, invited lecture, 14 Nov. 2017, Beijing Institute of Technology, Beijing, China
62. Advancing EO Data Science, invited lecture, 15 Nov. 2017 China Academy of Space Technology CAST, Beijing, China
63. Data Science: Progress and Perspectives, Key Note, 29 Nov. 2017, Big Data from Space Conference, Toulouse, France
64. Earth Observation Big Data: The Data Science paradigm shift, tutorial, IGARSS 2017, July 23, Fort Worth, Texas, USA.
65. Big Data from Space, Invited lecture, 3rd China High Resolution Earth Observation Conference, November 25, 2016, Shanghai Jiao Tong University, Shanghai, China.
66. Big Data Analytics for Earth Observation, October 10-14, invited lectures, Big Data from Space: algorithms and methods, Wuhan University, China.
67. Image Understanding and Information Mining for Very High Resolution Earth Observation, tutorial, ICIP 2016, September 25, Phoenix, Arizona, USA.
68. Big Data Analytics for Earth Observation, invited lecture, September 20, 2016, Center for Hybrid Multicore Productivity Research (CHMPR), University of Maryland, Baltimore County (UMBC), Baltimore, USA.
69. Big Data Mining for Earth Observation: a paradigm shift, invited lecture, September 19, 2016, NASA, GSFC, Greenbelt, USA.

70. Big Data Analytics: Algorithms, Methods and Tools for Earth Observation, tutorial, IGARSS 2016, July 10, Beijing, China.
71. Big data science for Earth observation - large scale visual analytics and knowledge discovery, invited Helmholtz Open Science, June 14&20, 2016, Webinar.
72. Mining Sensor Data, Big Data from Space BiDS 2016, keynote, March 16, Santa Cruz de Tenerife, Spain.
73. Data analytics, invited lectures, BigSkyEarth Training School, German Aerospace Center DLR, April 4-9, 2016. Oberpfaffenhofen, Germany.
74. SAR image analysis and understanding, postgraduate lectures, Embrapa Agricultural Informatics and Unicamp, 18-22 Jan. 2016, Campinas, Brazil.
75. DLR Activities in Image Information Mining: Results and Perspectives, Image Information Mining Conference (IIM) 2015, 29-20 Oct 2015, Bucharest, Romania.
76. SAR Information Extraction in the Era of Big Data, IET International Radar Conference, 14-16 Oct 2015, Hangzhou, China.
77. Copernicus: how big data will foster innovative ideas in the area of environment and society, fourth edition of the East-European Copernicus conference, 1-2 October, Bucharest.
78. Mining Big EO Data, Big Data in Secure Societies - 1st Workshop, 01 Sep 2015, Brussels, Belgium.
79. Big Data from Earth Observation: analytics, mining, semantics, tutorial, IGARSS 2015, 26 July, 2015, Milan, Italy.
80. Invited series of lectures on Image Mining algorithms and applications, Embrapa Agricultural Informatics, Campinas, Universidade de São Paulo, and Universidade Federal de São Carlos São Carlos 22-23 April, 2015, Brazil.
81. Information Mining for Satellite Image Time Series: Methods and Perspectives, 17th Brazilian Remote Sensing Symposium (SBSR), 25-29 Apr 2015, Joao Pessoa, PB, Brazil.
82. Lecture on SAR, China Academy of Space Technology CAST, 8-10 Dec 2014, Beijing, China
83. Mining Earth Observation Big Data: methods and applications, tutorial, IGARSS 2014, 12 July 2014, Quebec, Canada.
84. Smart Sensors Against Big Data: David and Goliath of Technology, ARSI14 & KEO14, 1-2 Oct. 2014, ESA/ESTEC, Noordwijk, The Netherlands.
85. Big Data Challenge: Mining Heterogeneous Data, Copernicus Big Data Workshop, 13-14 Mar 2014, Brussels, Belgium.
86. Advanced Pattern Recognition, lectures at the Doctoral School on Information and Communication Technology, 16-20 June 2014, University of Trento.
87. Big Data: Methods and Technology for Content Access, Big Data from Space, 5-6 June 2013, ESA/ESRIN, Frascati, Italy.
88. Earth Observation Data Mining: Spatio-temporal Patterns Discovery in Heterogeneous Data, tutorial, IGARSS 2013, 21 June 2013, Melbourne, Australia.
89. Image information mining, IGARSS Summer School, RMIT University, 18 July, 2013, Melbourne, Australia.
90. Image Information Mining: Fast Learning Methods, Chinese Academy of Sciences, Aeronautics, Space and Transport, Seminar 10 Apr. 2013, Beijing, China.
91. Perspectives of SAR Imaging, Seminar, Beijing Institute of Technology, 10. Apr. 2013, China.
92. Methods and Algorithms for Understanding of High Resolution SAR Images: Towards a SARINT Concept, IET International Radar Conference 2013, Tutorial, 12. Apr. 2013, Xian, China.

93. The Big Data Challenge: Handling Large Volumes of Earth Observation Data, tutorial, Copernicus Conference, 21-22 May 2013, Bucharest, Romania.
94. TerraSAR-X Big Data: The DLR Solutions for Data Mining, 5th TerraSAR-X / 4th TanDEM-X Science Team Meeting, 10-14 June 2013, Oberpfaffenhofen, Germany.
95. Image Information Mining - Methods and Applications for Exploration of Earth Observation data, tutorial, IGARSS 2012, 22 July 2012, Munich, Germany.
96. Monitoring with SAR, invited lecture, GEOSS Summer School: Advancing Earth Observation Data Understanding for Crisis Management and Emergency Response, August 29 - September 4, 2011, Neptun, Roumania.
97. Image Information Mining – Methods and Applications Related to Earth Observation Data, tutorial, IGARSS 2011, 24 July 2011, Vancouver, Canada. (presented by Gottfried Schwarz)
98. From Shannon Communication Theory to Semantic Coding: Concepts for Image Information Mining, Research Focal Point Scientific Computing, 7 February 2011, University of Innsbruck.
99. Understanding and Interpretation of High Resolution SAR Images, tutorial, IGARSS 2010, 25 July 2010, Honolulu, Hawaii (with Klaus Seidel).
100. Media Semantic Content Extraction: The Perspectives - semantics and data-mining, University of Oviedo and Agrupación Empresarial Innovadora del Conocimiento de Asturias A.I.E., 4 June, 2010, Oviedo, Spain.
101. Sensors as Communication Channels: Information Theoretical Modeling, Optimization, Design, tutorial, IEEE SENSORS 2009 Conference, 25 October 2009, New Zealand (with Prof. Inge Gavati)
102. Space-based Earth Observation and Applications, invited lecture, Romanian Conference on Space Applications, September 9-10, 2009, Palace of the Parliament, Bucharest, Romania.
103. New perspectives for satellite image data analysis, tutorial, 1st International Conference of Space Technology, ICST 2009, 24 August, 2009, Thessaloniki, Greece.
104. Understanding and Interpretation of High Resolution SAR Images, full day tutorial, IGARSS 2009, 12 July, 2009, Cape Town, South Africa (jointly with Klaus Seidel)
105. Presentation of the research at the CNES-DLR competence center, Workshop of the PhD-Track program “Multimedia, Distributed and Pervasive Secure Systems” 12 Dec. 2008, the German-French University, University Passau, Germany. (jointly with Gottfried Schwarz).
106. Understanding and Interpretation of High Resolution SAR Images, one day tutorial, IEEE RADARCON, 2009, 8 May, Pasadena, CA, USA.
107. From Shannon Communication Theory to Semantic Coding: Concepts for Image Information Mining, March 19, 2009, invited seminar, Informatics Institute, University of Missouri, USA.
108. Practical InSAR Lectures. ROSA Seminar, December 2-5, 2008, Bucharest, Romania.
109. Compression based indexing of image content. November 11, 2008, ETH Zurich, BIWI Seminar, Zürich, Switzerland.
110. Satellite Image Information Extraction and Understanding: Semantic and Contextual Understanding. October 23, 2008, Journée 23 Octobre / Conseil Scientifique, Paris, France.
111. Trends in Earth Observation. Workshop on Romanian R&D Strategy, 17 Sept. 2008, Bucharest, Romania.
112. The Scientific Activities of the CNES/DLR/Télécom Competence Center on Information Extraction and Image Understanding for Earth Observation, August 28, 2008, JRC Seminar, Ispra, Italy.
113. Image Information Mining - The High Resolution Era, July 15, 2008, NASA GSFC Seminar, Greenbelt, Maryland. USA.

114. Semantic Content Extraction from High Resolution EO Images, July 6, 2008, IGARSS 2008 Tutorial, Boston, Mass., USA.
115. Advances in Machine Learning: Application to High Resolution EO Image Understanding. Invited Lectures, June 16-20 Madrid, 2008, Spain
116. High Resolution Earth Observation Image Understanding. May 9-12, 2008, Invited Lectures, Alcala de Henares (Madrid), Spain
117. KIM for security applications, 14 December, 2007, EADS, Paris, France.
118. The GEMS and related security projects, Military Technical Academy, 23 October 2007, Sibiu, Romania.
119. Lectures on SAR and applications, Romanian Space Agency, 24-29 August 2007, Bucharest, Romania.
120. Information extraction and content analysis of high resolution EO images: Information Mining and Scene Understanding, (one day tutorial), IGARSS 2006, 22 July 2007, Barcelona, Spain (jointly with Klaus Seidel).
121. Scientific Rationale and Foundations of the Competence Center and Scientific Perspectives, The First Symposium of the CNES/DLR/ENST Competence Center on Information Extraction and Image Understanding for Earth Observation, 18 June, 2007, Paris, France.
122. Sistemas de Información Geográfica, presente y futuro, Jornadas de postgrado e investigación en ingeniería informática, - JPI3, 2 March, 2007, Facultad de informática. Universidad Pontificia de Salamanca Campus de Madrid, Spain.
123. Utilización de las imágenes de satélite para aplicaciones en Seguridad y Defensa, Fundación Circulo de Tecnologías para la Defensa y la Seguridad, April 24, 2007, University Politecnica Madrid, Spain.
124. Image Semantic Coding, NASA Information Science and Technology Colloquium Series, GSFC, 27 Sept., 2006, Goddard, USA. (jointly with Klaus Seidel)
125. Image Information Mining: The Semantic Gap, Seminar of Washington/Northern Virginia Chapter of IEEE/GRSS, Sept. 28, 2006, George Mason University Fairfax Campus, USA. (jointly with Klaus Seidel)
126. Information Extraction and Content Analysis of High Resolution EO Images, (one day tutorial), July 30th, 2006, IGARSS'06, Denver, USA.
127. Image Information Mining for NOAA, MODIS and MERIS data, Aug. 7, 2006, National Snow and Ice Data Center CIRES, UCB University of Colorado Boulder, USA.
128. Information Theory Based Inference in the Bayesian Context: Applications for Semantic Image Coding, (tutorial), 26th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering, July 8, 2006, CNRS, Paris, France.
129. The application of Information Transmission Theory in EO image information extraction and New perspectives of Information Theory and Inference in Image Understanding and Semantic Coding, CNES seminar on Image processing based on Information Theory, July 5th, 2006, CNES, Toulouse, France.
130. Information Theory based Inference: application to image mining and semantic coding, Jan. 30, 2006, Harriot - Watt University, Edinburg UK.
131. Information-Theory Based Inference and Applications for Data Massives, (tutorial) 25<sup>th</sup> International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering, Aug 7, 2005, San José State University, San José CA USA.

132. Information extraction from high resolution EO images: Information Mining and Scene Understanding, (one day tutorial). July 24, 2005, IGARSS'05, Seoul, Korea.
133. Image Information Mining, 21 June, 2005, CNES Seminar, Toulouse, France.
134. SAR Signature Estimation and Learning for Target Recognition, NATO SET-096, Millimeterwave Advanced Target Recognition and Identification Experiment (MATRIX 2005), NATO School Oberammergau, 9 May, 2005, Germany.
135. Human aware image understanding and information communication, BIWI Seminar, Knowledge-Based Image Interpretation, 28 April 2005, Swiss Federal Institute of Technology - ETH Zurich, Switzerland.
136. Bayesian methods for image information retrieval, 4 April 2005, European Patent Office, Munchen, Germany.
137. Image Information Mining, European Knowledge Discovery Network of Excellence KdNET Symposium, 3 June 2004, Bonn, Germany.
138. Applications of Image Information Mining, (one day tutorial) MacDonald Dettwiler and Associates Ltd., 31 Oct. 2003, Richmond, Canada.
139. Hierarchical analysis of high resolution SAR for Scene Understanding, NATO SET069 meeting WG Advanced Millimeterwave Techniques for Ground Target Acquisition, 19 Nov. 2003, DLR Oberpfaffenhofen, Germany.
140. Image Information Mining and Scene Understanding: Approaches for Image Content Exploration and Knowledge Discovery in Large Image Data Volumes, 19 July, 2003, (one day tutorial) IGARSS03, Toulouse, France.
141. KIM: Knowledge driven Image Information Mining, Seminar on Image Mining activities at CNRS/GdR, Information, Signal, Images et ViSion, 7 July, 2003, Paris, France.
142. A semantic perspective of scale-resolution scene understanding, Centre de Competence Technique Traitement du Signal et des Images, Atelier: Methodes de fusion multiresolution pour la synthese d'images, 16-17 December, 2002, CNES, Toulouse, France.
143. Image Information Mining: historical overview/ KIM - Knowledge Driven Information Mining/ Image Information Mining - DLR projects and perspectives, ESA-EUSC 2002: Joint seminar on Knowledge driven Information Management in Earth Observation data, December 5 - 6, 2002, ESRIN, Frascati, Italy.
144. Knowledge Driven Image Information Mining, BIWI Seminar, Knowledge-Based Image Interpretation, 28 November, 2002, Swiss Federal Institute of Technology - ETH Zurich.
145. Image Information Mining: theoretical perspectives, Invited talk at ACIVS 2002, Advanced Concepts for Intelligent Vision Systems, 9 September 2002, Ghent, Belgium.
146. Estimation of Bayesian hierarchical models, 19 August, 2002, University of Siegen, Germany.
147. Information Mining: Discovery and understanding of the Earth Observation data content, Wege aus dem Daten-Chaos: Moderne Techniken zur Nutzung wissenschaftlicher Daten, 16 Mai 2002, DLR & SISTEC, Köln, Germany.
148. Information Mining: a Bayesian approach for image content indexing and knowledge discovery in large image archives, The Models for Unified Multimedia Information Retrieval-MOUMIR EC network meeting, Trinity College, 14 March 2002, Dublin, Ireland.
149. Image information mining: Advanced methods for exploration and interpretation of remote sensing images (one day tutorial) 8 July 2001, IGARSS01, Sydney, Australia.



150. ClassFuse: New Bayesian learning and data grouping method with applications to image information content exploration, 12 March 2001, INRIA - Sophia Antipolis, France.
151. Image Information Mining, Short Course (3 hours + discussions), "Data Mining" meeting Alcatel/CNES/DLR, Alcatel Space Industries, 10 November 2000, Toulouse, France.
152. Information Mining in Remote Sensing Image Archives, Workshop on Automated Imagery Data Mining Tools, NASA's Goddard Space Flight Center Greenbelt, 20 October 2000, MD 20771 USA (also organizer of the workshop).
153. Information Mining Concept for ATR and SAR Scene Understanding, NATO SET/TG.14 WG Advanced Millimeterwave Techniques for Ground Target Acquisition, Thematic Day: German Activities related to ATR, 26 Sept. 2000, DLR Oberpfaffenhofen, Germany.
154. Information extraction and mining information in SAR data, SAR expert meeting Alcatel/CNES/DLR, 20-21 June 2000, Alcatel Space Industries, Toulouse, France.
155. Advanced communication concepts for information retrieval from heterogeneous data archives (tutorial), 27th SPEEDUP Workshop: Scientific Data Management and Understanding in Computational Science, 17 March 2000, Cadro-Lugano, Switzerland.
156. Synthetic Aperture Radar Interferometry: a classical signal processing approach, 25 November 1999, Swiss Federal Institute of Technology - ETH Zürich, Switzerland.
157. Image Communication: New Features of a Satellite Data Ground Segment, 1 June 1999, JRC, Ispra, Italy.
158. Image Information Mining, 4 April 1999, JRC, Ispra, Italy.
159. Bayesian methods for information retrieval from remote sensing data (tutorial 3 hours), 27 June 1999, IGARSS'99, Hamburg, Germany.
160. Bayesian hierarchic modeling and image information retrieval, February 1999, LSIIT ENSP Strasbourg, France.
161. Content Based Information Retrieval from Large Remote Sensing Databases, 25 January 1999, DLR Colloquium, Oberpfaffenhofen, Germany.
162. Bayesian inference for queries in large image archives, 11-16 July 1998, series of lectures with discussions and round tables at: NEC Research USA, NASA - JPL Pasadena, NASA - Goddard Flight Space Center, IBM Almaden and IBM Watson, USA.
163. Scene understanding from SAR images (tutorial), ISPRS Workshop WG III/6, 29 January 1998, Aérospatiales, Cannes, France.
164. Fusion of multiscale information (tutorial), 28 January 1998, EARSeL Workshop, Fusion of Earth Data'98, Sophia Antipolis, France.
165. Model-Based Methods for Remote Sensing Data Management, 25 April 1997, Round Table, DLR, Oberpfaffenhofen, Germany.
166. InSAR Topographic Mapping - a Bayesian Approach, 23 April 1997, European Geophysical Society XXII, General Assembly Vienna, Austria.
167. Wavelets: Potential Applications in Remote Sensing, 22 October 1996, Workshop on "Wavelets", Daimler-Benz Aerospace AG, Ulm, Germany.
168. Wavelet based compression of multi-dimensional signals, 2-3 October 1996, Round Table on Data Compression Techniques for Space Applications, European Space Agency ESA/ESTEC, Noordwijk, The Netherlands.
169. Scene Understanding: A Bayesian Approach, 15-17 May 1996, Massachusetts Institute of Technology – MIT, Cambridge, MA, USA.

170. Scene Understanding from Images: A Bayesian Approach, April 1996, Swiss Federal Institute of Technology - ETH Zürich, Switzerland.
171. Management and Interpretation of Remotely Sensed Data, 15 November 1993, European Space Agency ESA/ESTEC, Noordwijk, The Netherlands.
172. System and Memory Architectures for Parallel Image Processing, March 1993, Ecole Polytechnique Federale de Lausanne - EPFL, Switzerland.
173. Image formation and synthesis, Short Course (4 hours), 4 February 1993, SPIE International Symposium on Electronic Imaging: Science&Technology, San Jose CA, USA.
174. Application of Fractals in Geoinformation Processing, January 1993, Groupement Scientifique pour Teledetection Spatiale, Universite Louis Pasteur de Strasbourg, France.
175. Advances in Visualisation Techniques in Remote Sensing, February 1992, Hunter College, City University of New York, USA.
176. Image Formation and Synthesis, 28 February 1992, Center for Image Processing and Integrated Computing seminar, University of California, Davis, CA, USA.
177. Modelling Coherent Light Image Formation, 25 November 1991, Colloquium on Electronics and Communications, Swiss Federal Institute of Technology - ETH Zürich, Switzerland.
178. Trends in Image Processing Systems Architectures and Algorithms (intensive course, 20 hours), 21-23 October 1991, Universidad Politecnica de Valencia, Spain.
179. Aspects in DFT Applications in Signal Processing (intensive course, 20 hours), June 1991, Automatics Control and Systems Dpt., Polytechnic Institute of Gijon, Spain.
180. Speckle Images: Digital Simulation and Processing, May 1991, Ecole Polytechnique Federale de Lausanne - EPFL, Switzerland.
181. Computer Networks and Sattelite Communications, April 1991, Iasi, Romania.
182. Cellular Automata, July 1989, Dynamic Systems Conference, Odorhei, Romania.

## List of Publications

### Publications summary

- Theses: 2 (Ph.D. and habilitation)
- Articles in peer reviewed journals: published 155 in press 3
- Articles in conference proceedings with peer review: more than 400
- Books: published 3, chapters published 20, books under work 1
- Other articles in conference proceedings or presentations: more than 100
- Invited conferences, key notes, tutorials: 180
- H-Index: Google Scholar 41
- Publications available on [www.elib.dlr.de](http://www.elib.dlr.de) and Google Scholar

### 1. Habilitation Thesis

*Information theoretical aspects and semantic representations in advanced communication systems*, University Louis Pasteur, Strasbourg, France, 1999

## 2. Doctor Engineer Thesis

*Contributions to the development of efficient methods for high complexity signal analysis*, Polytechnic Institute of Bucharest, Romania, 1986

## 3. Books

1. M. Datcu, Statistical methods in image analysis, Valahia University Press, 2019, ISBN: 978-606 - 603-205-6 (in Romanian)
2. M. Datcu, Introduction in SAR interferometry (Lecture Notes), Valahia University Press, 2019, ISBN: 978-606-603-204-9 (in Romanian)
3. M. Datcu, "Number Theory Applications in Information Processing", Polytechnic Institute Press, Bucharest; graduate and post graduate course in fast algorithms, 1988 (in Romanian).

## 4. Book chapters

1. R. Mohammadi Asiyabi, M. Datcu, A. Anghel, H. Nies, "Semantic Information Discovery and Complex-Valued Deep Architectures for SAR Data Processing", *ATHENA Research Book, Volume 1* Editors: József Györkös (University of Maribor), Ron Blonder (Weizmann Institute of Science), Anne Friederike Delouis (University of Orléans), Jana Javornik (University of Leeds), Konstantinos Petridis (Hellenic Mediterranean University), University of Maribor University Press, 2022
2. C.-O. Dumitru, M. Datcu, *Semantic Analysis of Satellite Image Time Series*. In: Change Detection and Image Time Series Analysis Wiley Encyclopedia of Sciences, 2 (3), ISTE, pp 1-21, 2021 (in press).
3. C. Vaduva, M. Iapaolo, M. Datcu, A Scientific Perspective on Big Data in Earth Observation, in Principles of Data Science, Springer, 2020
4. M. Datcu, G. Schwarz, C.-O. Dumitru, Corneliu Octavian, Deep Learning Training and Benchmarks for Earth Observation Images: Data Sets, Features, and Procedures. In: Artificial Neural Networks In-Tech, 2020
5. C.-O. Dumitru, G. Schwarz, F. Castel, J. Lorenzo, M. Datcu, Artificial Intelligence Data Science Methodology for Earth Observation, in Advanced Analytics and Artificial Intelligence Applications, InTech Publishing, London, UK, September 2019, pp. 75-97, DOI: <http://dx.doi.org/10.5772/intechopen.86886>
6. C.-O. Dumitru, G. Schwarz, M. Datcu, H. Hummel, C. Hummel, Analysis of Coastal Areas Using SAR Images: A Case Study of the Dutch Wadden Sea Region. In: Topics in Radar Signal Processing, InTech Publishing, pp. 115-136. 2018, ISSN 978-953-51-5836-3

7. C. Vaduva, F. A. Georgescu, M. Datcu, "Dictionary-Based Compact Data Representation for Very High Resolution Earth Observation Image Classification", in: *Advanced Concepts for Intelligent Vision Systems: 16th International Conference, ACIVS 2015, Catania, Italy, October 26-29, 2015. Proceedings*, pp 816—825, Springer Berlin Heidelberg , doi:10.1007/978-3-319-25903-1\_70
8. C. Nikolaou, K. Kyzirakos, K. Bereta, K. Dogani, S. Giannakopoulou, P. Smeros, G. Garbis, M. Koubarakis, D. Espinoza-Molina, C. Dumitru, G. Schwarz, M. Datcu, "Big, Linked and Open Data: Applications in the German Aerospace Center." In: *The Semantic Web: ESWC 2014 Satellite Events: ESWC 2014 Satellite Events*, Anissaras, Crete, Greece, May 25-29, 2014, Revised Selected Papers, pp. 444-449, Springer Berlin Heidelberg ,doi: 10.1007/978-3-319-11955-7\_64, URL:[users.uoa.gr/~psmeros/publications/2014/eswc2014.pdf](http://users.uoa.gr/~psmeros/publications/2014/eswc2014.pdf)
9. M. Babaee, M. Datcu, G. Rigoll, 2013, "Immersive Interactive Information Mining with Application to Earth Observation Data Retrieval" in: *Availability, Reliability, and Security in Information Systems and HCI: IFIP WG 8.4, 8.9, TC 5 International Cross-Domain Conference, CD-ARES 2013, Regensburg, Germany, September 2-6, 2013. Proceedings*, pp. 376-386, Springer Berlin Heidelberg, doi: 10.1007/978-3-642-40511-2\_27, URL: [elib.dlr.de/88825/1/springer\\_HCI-KDD.pdf](http://elib.dlr.de/88825/1/springer_HCI-KDD.pdf)
10. M. Koubarakis, M. Sioutis, G. Garbis, M. Karpathiotakis, K. Kyzirakos, C. Nikolaou, K. Bereta, S. Vassos, C. O. Dumitru, D. Espinoza-Molina, K. Molch, G. Schwarz, M. Datcu, 2012, "Building Virtual Earth Observatories Using Ontologies, Linked Geospatial Data and Knowledge Discovery Algorithms", in: *On the Move to Meaningful Internet Systems: OTM 2012: Confederated International Conferences: CoopIS, DOA-SVI, and ODBASE 2012*, Rome, Italy, September 10-14, 2012. Proceedings, Part II , pp. 932-949, Springer Berlin Heidelberg ,doi: 10.1007/978-3-642-33615-7\_34, URL: [strabon.di.uoa.gr/files/odbase2012.pdf](http://strabon.di.uoa.gr/files/odbase2012.pdf)
11. M. Koubarakis, M. Karpathiotakis, K. Kyzirakos, C. Nikolaou, S. Vassos, G. Garbis, M. Sioutis, K. Bereta, S. Manegold, M. Kersten, M. Ivanova, H. Pirk, Y. Zhang, C. Kontoes, I. Papoutsis, T. Herekakis, D. Mihail, M. Datcu, G. Schwarz, O. Dumitru, D. Molina, K. Molch, U. Giammatteo, M. Sagona, S. Perelli, E. Klien, T. Reitz, R. Gregor, 2012, "Building Virtual Earth Observatories Using Ontologies and Linked Geospatial Data", *Web Reasoning and Rule Systems: 6th International Conference, RR 2012, Vienna, Austria, September 10-12, 2012. Proceedings*, pp. 229-233, Springer Berlin Heidelberg ,doi: 10.1007/978-3-642-33203-6\_21, URL: <http://www.earthobservatory.eu/publications/RR2012.pdf>
12. I.M. Gomez Munoz, M. Datcu, "Image Information Mining Systems", in *Geoscience and Remote Sensing New Achivments*, Pasquale Imperatore and Daniele Riccio (Ed), ISBN 978-953-7619-97-8, InTech, doi: 10.5772/9101, URL: <http://cdn.intechopen.com/pdfs-wm/10392.pdf>
13. C. Vaduva, D. Faur, A.A. Popescu, I. Gavati, M. Datcu, „Semantic map generation from satellite images for humanitarian scenarios applications”, in *Advanced Concepts for Intelligent Vision Systems: 10th International Conference, ACIVS 2008, Juan-les-Pins, France, October 20-24, 2008. Proceedings*, pp. 808-817, Springer Berlin Heidelberg, doi: 10.1007/978-3-540-88458-3\_73
14. D. Faur, I. Gavati, M. Datcu, 2006, "Mutual Information Based Measure for Image Content Characterization", in *Current Topics in Artificial Intelligence: 11th Conference of the Spanish Association for Artificial Intelligence, CAEPIA 2005, Santiago de Compostela, Spain, November*

- 16-18, 2005, Revised Selected Papers, pp. 342-349, Springer Berlin Heidelberg, doi: 10.1007/11881216\_36
15. C. Iancu, I. Gavut, M. Datcu, "Image Disorder Characterization Based on Rate Distortion", in *Current Topics in Artificial Intelligence: 11th Conference of the Spanish Association for Artificial Intelligence*, CAEPIA 2005, Santiago de Compostela, Spain, November 16-18, 2005, Revised Selected Papers, pp. 261-268, Springer Berlin Heidelberg, doi : 10.1007/11881216\_28
  16. M. Datcu, K. Seidel, "An Innovative Concept for Image Information Mining" in *Mining Multimedia and Complex Data: KDD Workshop MDM/KDD 2002. PAKDD Workshop KDMCD 2002*. Revised Papers, pp. 84 – 99, Springer Berlin Heidelberg, doi: 10.1007/978-3-540-39666-6\_6
  17. M. Ciucu, P. Heas, M. Datcu, J.C. Tilton, "Scale Space Exploration for Mining Image Information Content", in *Mining Multimedia and Complex Data: KDD Workshop MDM/KDD 2002. PAKDD Workshop KDMCD 2002*. Revised Papers, pp. 118 – 133, Springer Berlin Heidelberg, doi: 10.1007/978-3-540-39666-6\_8, URL: [www.fluid.irisa.fr/publis/2003\\_Ciucu.pdf](http://www.fluid.irisa.fr/publis/2003_Ciucu.pdf)
  18. M. Datcu, G. Schwarz "The Application of Forward Modelling as a Data Analysis Tool, in Information Processing for Remote Sensing", Ed. C.H. Chen, World Scientific Publishing Company Pte Ltd, pp. 51-65, 10 (2000): 9789812815705\_0003
  19. H. Rehrauer, M. Datcu, "Selecting scales for texture models", in *Texture Analysis in Machine Vision*, Ed.: M.K. Pietikäinen, *Series in machine perception and artificial intelligence*, World Scientific 2000, Vol. 40, pp. 19-30, URL: [https://www.vision.ee.ethz.ch/publications/papers/proceedings/eth\\_biwi\\_00175.ps.gz](https://www.vision.ee.ethz.ch/publications/papers/proceedings/eth_biwi_00175.ps.gz)
  20. M. Datcu, K. Seidel, G. Schwarz, "Elaboration of advanced tools for information retrieval and the design of a new generation of remote sensing ground segment systems", in: I. Kanellououlos, editor, *Machine Vision in Remote Sensing*, pp. 199-212, Springer Berlin Heidelberg
  21. M. Datcu, "Address Space Increase for Microcomputers", chapter; graduate students design directories; Polytechnic Institute Press, Bucharest, 1988 (book chapter, in Romanian)

#### 4. Journal articles with peer review

1. Zhouyan Qiu, J. Martínez-Sánchez, P. Arias, M. Datcu, "A novel low-cost multi-sensor solution for pavement distress segmentation and characterization at night", *International Journal of Applied Earth Observation and Geoinformation*, Elsevier, Vol. 120, pp. 1-13, 2023
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