



## Europass Curriculum Vitae



### Personal information

First name(s) / Surname(s) **Andrei ANGHEL**

Nationality Romanian

Date of birth 24.07.1987

Gender Male

### Work experience

Dates October 2012 – onwards

Occupation or position held Associate professor (2019-onwards), Assistant professor (2015-2019), Teaching/Research Assistant (2012-2015)

Main activities and responsibilities Teaching lessons on Radar, Microwaves, Digital Signal Processing  
Research topics: Remote sensing, RADAR sensors, Signal Processing

### Relevant projects:

- ✓ TomoSAR-1B, “Single-pass bistatic SAR tomography”, contract with the European Space Agency (ESA), 2018-2020, *Project responsible*. The goal of the project is to prototype an architecture for single-pass bistatic synthetic aperture radar (SAR) tomography using as transmitter of opportunity the C-band Sentinel-1A/B satellite and to produce a portable (miniaturised) ground-based stationary bistatic SAR receiver with several receive antennas (and acquisition channels) that form the elevation aperture.
- ✓ PRYSTINE, “Programmable Systems for Intelligence in Automobiles”, ECSEL-JU/Horizon 2020 project, 2018-2021, *Project responsible*. PRYSTINE's target is to realize Fail-operational Urban Surround perceptiON (FUSION) which is based on robust RADAR („Radio Detection and Ranging”) and LiDAR (“Light Detection and Ranging”) sensor fusion and control functions in order to enable safe automated driving in urban and rural environments. Within the project, the UPB team contributes to the development of signal processing algorithms (for automotive radars) that aim to detect and mitigate radar-to-radar interferences.
- ✓ AMIRAD, “Metamaterial antenna for radar imaging”, UPB-GEX2017 internal grant, *Project manager*. The project's objective was to design, implement and evaluate a C-band microstrip metamaterial antenna for radar imaging.

- ✓ COBIS, "Opportunistic C band bistatic SAR differential interferometry", ESA contract, 2016-2018, *Project team member*. Project goal: design, implementation and evaluation of an architecture for bistatic differential InSAR (using opportunistically the C band Sentinel-1 satellite), which is able to exploit best characteristics of both ground-based SARs, classic satellite SAR interferometry and persistent scatterers techniques in monitoring ground movements like landslides, volcanoes, glaciers and large built structures.
- ✓ GRADIS "Ground based RADar for DISplacement measurements", Program Parteneriate, 2012 – 2015, *Project team member*. Project goal: development of an X-band Ground-based Radar instrument and signal processing chain for very accurate displacement measurements.
- ✓ BISTATIC – PSI "Bistatic SAR Demonstrator for PS Interferometry using a Fixed-Receiver Configuration", Space Technology and Advanced Research program, contracting authority-Romanian Space Agency, 2012 – 2015, *Project team member* Project goal: design and implementation of a fixed-receiver Bistatic SAR system that uses satellite systems as transmitters of opportunity. The initial calibrations and synchronizations are designed and correlated with the TerraSAR-X mission.

Name and address of employer	University Politehnica of Bucharest (UPB), Splaiul Independentei nr. 313, Bucharest, ROMANIA
Type of business or sector	Education
Dates	March 2013 – September 2015
Occupation or position held	Doctoral Researcher
Main activities and responsibilities	-Investigated methods for infrastructure monitoring using satellite radar sensors. -Designed a processing methodology for synthetic aperture radar images. -Performed various measurements with geophones, accelerometers and ultrasound transducers. -Gave presentations at international conferences with peer review.
	<b>Relevant projects:</b>
	<ul style="list-style-type: none"> <li>✓ Surveillance des grands ouvrages énergétiques par télédétection radar à synthèse d'ouverture (Large infrastructures monitoring using synthetic aperture radar), 2013-2015, Institut Carnot "Energies du Futur", Électricité de France (EDF) R&amp;D / EDF DTG.</li> <li>✓ Etude du potentiel des satellites COSMO-SkyMed pour la mesure de déplacement InSAR aux environs des centrales nucléaires (Study of the potential of COSMO-SkyMed satellites to monitor the displacements of nuclear power plant sites using InSAR techniques), 2014, Institut Carnot "Energies du Futur", EDF</li> </ul>

Name and address of employer	Grenoble Image sPeech Automatics Laboratory (GIPSA-lab), University of Grenoble Alpes 11 rue des Mathématiques, Grenoble Campus, Saint Martin d'Hères, FRANCE
Type of business or sector	Research/Education

## Education and training

Dates	2012-2015
Title of qualification awarded	Doctor (Ph.D.)
Principal subjects/occupational skills covered	Joint Ph.D. degree from the University of Grenoble Alpes (in signal, image, speech, and telecommunications), and the University Politehnica of Bucharest (in electronic engineering and telecommunications; awarded <i>summa cum laude</i> ). Thesis title: High-Resolution Time-Frequency SAR Signal Processing for Large Infrastructure Monitoring
Name and type of organisation providing education and training	University of Grenoble Alpes, Grenoble, France and University Politehnica of Bucharest, Bucharest, Romania
Dates	2010-2012
Title of qualification awarded	Master degree in Integrated circuits and systems for communications

Principal subjects/occupational skills covered Software Defined Radio (SDR) systems, Microwave circuits, Radio navigation systems, Radiofrequency measurements, Hardware Description Languages (HDL), Advanced digital signal processing techniques

Name and type of organisation providing education and training University Politehnica of Bucharest

Dates 2006-2010

Title of qualification awarded Bachelor degree in Electronics and Telecommunications

Principal subjects/occupational skills covered Mathematics, Physics, Digital Signal Processing, Microwave Techniques, Radar, Antennas and propagation, Electronic circuits, Microprocessors, Theory of Information Transmission, Modern Communication Techniques, Research Methods

Name and type of organisation providing education and training University Politehnica of Bucharest

**Personal skills and competences**

Mother tongue(s) Romanian

Other language(s)

Self-assessment

*European level (\*)*

**English**

**French**

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user	C1	Proficient user
B2	Independent user	B2	Independent user	B2	Independent user	B2	Independent user	B1	Independent user

Communication skills Good communication skills gained through my teaching activities.

Organisational skills and competences Good experience in projects coordination gained while working at different projects and writing project proposals.

Technical skills and competences Remote Sensing, Synthetic Aperture Radar (SAR), Digital Signal Processing, Microwave techniques

Computer skills and competences MATLAB, ADS, CST, C, VHDL, Microsoft Office, LaTeX

## Additional information Awards

Valedictorian of the UPB in 2010 (rank 1 of 400).

2 gold medals at the International Physics Olympiads in 2005 and 2006, respectively.

### Papers in conference proceedings and journals – selected list

1. A. Anghel, R. Cacoveanu, A. Moldovan, B. Rommen and M. Datcu, "COBIS: Opportunistic C-Band Bistatic SAR Differential Interferometry," in IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol. 12, no. 10, pp. 3980-3998, Oct. 2019.
2. A. Anghel, M. Tudose, R. Cacoveanu, M. Datcu, G. Nico, O. Masci, A. Dongyang, W. Tian, C. Hu, Z. Ding, H. Nies, O. Loffeld, D. Atencia, S.G. Huaman, A. Medella, J. Moreira, "Compact Ground-Based Interferometric Synthetic Aperture Radar: Short-Range Structural Monitoring," in IEEE Signal Processing Magazine, vol. 36, no. 4, pp. 42-52, July 2019.
3. M. Coca, A. Anghel and M. Datcu, "Unbiased Seamless SAR Image Change Detection Based on Normalized Compression Distance," in IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, vol. 12, no. 7, pp. 2088-2096, July 2019.
4. M. Tudose, A. Anghel, R. Cacoveanu, M. Datcu, "Pulse Radar with Field-Programmable Gate Array Range Compression for Real Time Displacement and Vibration Monitoring," Sensors, Vol. 19, Iss. 1, Article number 82, Jan. 2019.
5. M. Tudose, A. Anghel, R. Cacoveanu, M. Datcu, "On the beat signal synchronisation of interferometric FMCW radars," IET Radar, Sonar and Navigation, Vol. 11, Iss.: 8, pp. 1181-1187, Aug. 2017.
6. A. Anghel, G. Vasile, R. Boudon, G. d'Urso, A. Girard, D. Boldo, V. Bost, „Combining spaceborne SAR images with 3D point clouds for infrastructure monitoring applications,” ISPRS Journal of Photogrammetry and Remote Sensing, vol. 111, pp. 45-61, Jan. 2016.
7. A. Anghel, G. Vasile, R. Cacoveanu, C. Ioana, S. Ciochină, J.-P. Ovarlez, „Scattering Centers Detection and Tracking in Refocused Spaceborne SAR Images for Infrastructure Monitoring,” IEEE Transactions on Geoscience and Remote Sensing, vol.53, no.8, pp.4379-4393, Aug. 2015.
8. A. Anghel, G. Vasile, R. Cacoveanu, C. Ioana, S. Ciochină, „Short-Range Wideband FMCW Radar for Millimetric Displacement Measurements,” IEEE Transactions on Geoscience and Remote Sensing, vol.52, no.9, pp. 5633-5642, Sept. 2014.
9. A. Anghel, G. Vasile, C. Ioana, R. Cacoveanu, S. Ciochina, "On the detection of non-stationary signals in the matched signal transform domain," Proceedings ICASSP 2016, Shanghai, China, March 2016, pp. 4204-4208.
10. A. Anghel, G. Vasile, C. Ioana, R. Cacoveanu, S. Ciochina, *Model-based parameters estimation of non-stationary signals using time warping and a measure of spectral concentration*, Proceedings ICASSP 2015, Brisbane, Australia, April 2015, pp. 3706-3710.