



Camelia FLOREA, Ph.D.

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About me:

- My expertise includes **Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision, and Data Analytics**, combining a strong mathematical foundation with hands-on experience in software development, research, and teaching. I am passionate about advancing intelligent technologies through research, innovation, and interdisciplinary collaboration.
- I am an **Assistant Professor** in the Communications Department at the Technical University of Cluj-Napoca (UTCN), Faculty of Electronics, Telecommunications and Information Technology (ETTI), with a Ph.D. in Electronics and Telecommunications (2009).

Main Research and Development Areas:

- Artificial intelligence, machine learning, and intelligent data analytics;
- Computer vision, image and video processing, and multimedia analysis;
- Image and video compression (JPEG, JPEG 2000, MPEG, H.26x), including computationally efficient compressed-domain processing and analysis;
- Edge computing, IoT, and intelligent multimedia systems; Real-time decision-support systems.

Work experience at [Technical University of Cluj-Napoca](#):

- **October 2011 – present:** Assistant Professor & Researcher
- **July 2010 – April 2013:** Post-Doctoral Researcher
- **February 2009 – October 2011:** Teaching Assistant & Researcher
- **September 2008 – February 2009:** Research Assistant
- **October 2005 – September 2008:** Ph.D. Student

I am conducting classes in the following disciplines (in Romanian&English):

- B.Sc. in Telecommunications Technologies and Systems (TTS):
 - *Digital Techniques for Video Analysis*
 - *Digital Image Processing*
- M.Sc. in Multimedia Technologies (TM)
 - *Image and Video Compression/Coding*
 - *Machine Vision Applications*
- M.Sc. in Telecommunications (TC)
 - *Data Mining and Analytics using Python*

Leading/ coordinating diploma and M.Sc. thesis: 6 to 15 students each year.

Coordination of diploma/dissertation thesis – that involves theoretical study and software implementation for digital image processing applications. Providing guidance and feedback to ensure that targets are met, and projects are completed efficiently. Checking the software implementation (and helping students to solve the bugs), experimental validation and the final paper.

Education:

- **2005-2009:** Ph.D. Degree in Electronics and Telecommunications,
 - Technical University of Cluj-Napoca, Romania, Faculty of Electronics, Telecommunications and Information Technology, Communication Department,
 - Ph.D. Thesis: " Contributions to nonlinear and adaptive processing of JPEG compressed images",
 - Scientific coordinator: **Prof.Eng. Aurel VLAICU, PhD**
- **2005-2006:** Postgraduate studies, the field of Multimedia Technology,
 - Technical University of Cluj-Napoca, Romania, Faculty of Electronics, Telecommunications and Information Technology.
 - Scientific coordinator: **Prof.Eng. Aurel VLAICU, PhD**
- **2000-2005:** Diplomat Engineer, the field of Telecommunications,
 - Technical University of Cluj-Napoca, Romania, Faculty of Electronics and Telecommunications.
 - Scientific coordinator: **Conf.Eng. Mihaela GORDAN, PhD**
- **1995-2000:** High School - Computer Science.
 - "Liceul de Informatica Tiberiu Popoviciu", Cluj-Napoca, Romania.

Summer School of Image Processing (SSIP)

2008 July 7-16 SSIP'08 at the Technical University of Vienna, Austria

2007 July 6-15 SSIP'07 at the University of Szeged, Hungary

ERASMUS/SOCRATES Internship

2007 March-May - at the University of Angers, France, LISA laboratory

Projects in collaboration with private companies:

- **“Computer Vision for Self-Driving Cars”,** at Engineering Center Cluj, **Robert Bosch Romania.**
 - **“Mobile Application for Parking Spots Availability Management”,** with **Parking Spotter**
 - Nowadays, intelligent parking spot availability management is a must for smart cities, because nobody enjoys wasting time in traffic looking for a parking space. The developed application identifies the free parking spots in a large parking lot by analyzing the information from the surveillance cameras.
 - Software Development – in Visual C# and Python.
 - **“Real-Time Vehicle Counting”,** with **SC Mrobots SRL**
 - Real-time vehicle detection, tracking and counting from surveillance cameras is a main part of many applications in smart cities. In this project, we proposed an approach for real-time vehicle counting by using Tiny YOLO for detection and fast motion estimation for tracking. The developed application is running in Ubuntu with GPU processing, and the next step is to test it on low-budget devices, such as Jetson Nano. Experimental results show that our approach achieves high accuracy at real-time speed (33.5 FPS) on real traffic videos.
 - Software Development – in Python, edge computing on Jetson Nano.
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Research projects through university, as a scientific researcher, 10 projects, three of them being:

- ***"Intelligent system for dams surveillance by information fusion"*** (PN-III-P2-2.1-PTE-2016-0134, 2016 – 2018); project partners: IPA SA, UTCN (website: <http://www.automation.ro/damfu/>).
 - The project aims to develop a system - complex, modular product destined for dams supervision and other hydrotechnical critical infrastructure, IHC, (dikes, weirs, adductions channel, surge towers), in order to ensure their safety in natural disasters, technological accidents, and on natural aging processes, for protecting population and environment.
 - Software Development – in Visual C#.
- ***"Interactive Real-Time Video Surveillance Services for Improved Public Safety in Crowded Urban Areas"*** (PN-II-PT-PCCA-2013-4-1791 2014 - 2017), project partners: UTCN; IPA SA; ACADEMIA DE POLITIE "ALEXANDRU IOAN CUZA"; AXTEN SRL; E G H IMPORT EXPORT S.R.L. (website: <http://46.243.115.186/sites/intereviss/>).
 - Intelligent distributed video surveillance plays a central role in public safety and security, as they can provide not only the monitoring and detection of anomalous events across wide-area public scenes, but also the understanding and semantic representation of these events in real-time, to effectively support the authorized personnel decisions. Analysing dense crowd behavior, tracking objects, crowds and individuals across multiple camera views and identifying abnormal events related to them requires special computer vision algorithms and collaborative video analytics approaches implemented in a computationally effective manner.
 - Software Development – in Visual C# .
- ***"Mobile System for Rehabilitative Vocal Assistance of Surgical Aphonia."*** (PN-II-PT-PCCA-2013-4-1660 2014 - 2017) Project partners: UTCN; FORTECH SRL; U.M.F. Cluj-Napoca; UNIVERSITATEA BABES BOLYAI, (<http://speech.utcluj.ro/swara>).
 - SWARA (Mobile System for Rehabilitative Vocal Assistance of Surgical Aphonia) aims at helping the people who have unfortunately lost their voice to be able to take part in daily social life with limited restrictions regarding their communication.
 - Software Development – in Visual C#.

International projects:

- ***„Image Processing, Information Engineering & Interdisciplinary Knowledge Exchange"*** CEEPUS CII-AT-0042 (2008-present), local coordinator: Univ.Prof.Ph.D. Aurel Vlaicu, network coordinator: Medical University Graz, Department of Radiology, Univ.Prof.Dr. Erich Sorantin. Partners: Universities from Austria, Bosnia-Herzegovina, Croatia, Hungary, Montenegro, Prishtina-Kosovo, Romania, Serbia, etc. (www.ceepus.info).
- International mobilities - as part of other projects, to make international relationships, for dissemination propose and participate at conferences.

International publications - over 40 articles,

- 6 ISI journal papers, 15 ISI indexed conference papers,
- other BDI indexed papers.

Published articles (the last four papers published):

- Bogdan Burtea, **Camelia Florea**, Radu Ștefan Simea, Mihaela Gordan, Ciprian Iacobescu, Gabriel Oltean *„Weather-Aware Augmentation for Parking Slot Detection Using Vision-Language Image Editing,"* 18th International Conference on Electronics, Computers and Artificial Intelligence (ECAI), Bucharest, Romania, July 2026, [IEEE]. DOI: 10.1109/ECAI69016.2026.11613649.
- Bogdan Burtea, Radu Ștefan Simea, **Camelia Florea**, Mihaela Gordan, Gabriel Oltean, Ciprian Iacobescu, *"Patch vs Scene Level Features for Parking Slot Detection under Diverse Weather Conditions,"* 2026

Advanced Topics on Measurement and Simulation (ATOMS), Cluj-Napoca, Romania, May 2026, [IEEE]. DOI: 10.1109/ATOMS69836.2026.11583196.

- Alexandru Iacobescu, Gabriel Oltean, **Camelia Florea**, Mihaela Gordan, Bogdan Burtea, "*OpenPk: A New Dataset for Parking Space Analysis*," International Conference on Big Data, Knowledge and Control Systems Engineering (BdKCSE), Sofia, Bulgaria, November 2023, [IEEE]. DOI: 10.1109/BdKCSE59280.2023.10339780
- Andreea Georgiana Covaciu, **Camelia Florea**, Lorant Szolga, "*Microscopic images analysis for saliva ferning prediction*", 2020 International Symposium on Fundamentals of Electrical Engineering (ISFEE), Bucharest, Romania, 5-7 November 2020 (On-line conference), [ISI], [IEEE]. DOI:10.1109/ISFEE51261.2020.9756142, WOS:000812321500012.

Linguistic Abilities

- English – good speaking, reading and writing.
- Romanian – native speaker

Technical Skills

- Software Design and Development
 - Azure Machine Learning, Databricks
 - Python; Visual Studio C#, C++, OpenCV
 - ORACLE, SQL (basic); Microsoft SharePoint (basic)
 - MatLab; LabView; IMAQ Vision

General skills:

- Analytical skills, fast learning capacity, excellent planning skills with great attention to detail.
- Communication skills, ability to work both in a team and individual, ability to work with people.
- Ability to prioritize work, problem-solving skills.
- Setting high standards of performance for self and/or others.

Other info:

- Driving license, Category B, acquired on 3 Nov 2004
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