



BENEA STEFANIA

WORK EXPERIENCE

University Lecturer (previously Research Assistant, Associate Teaching Staff & Assistant Professor), Technical University of Cluj-Napoca, November 2018 – Present

- Currently course responsible for *Machine Learning Techniques* (Master's in Artificial Intelligence and Signal Processing, English section) and *E-commerce*.
- Teaching and coordinating labs/seminars in *Information Transmission Theory and Signal Processing* and *Decision and Estimation in Information Processing*.
- Supervising bachelor and master's theses in machine learning and artificial intelligence.
- Conducting academic research in AI/ML.

Software Engineer Intern, Frequentis Romania, July 2017 – August 2017

- Development of a project in Python for performing the automatic deployment of software.

Automation Engineer, Paddy Power Betfair Romania Development, July 2016 – April 2017

- Monitoring the status of various services and servers, using AWS services for cloud computing, script development in Python, PowerShell and Bash for automating various processes, server management.

Intern, Kromberg & Schubert, IT Performance Center, Sibiu, July 2014 – August 2014

- Acquiring basic knowledge in Linux and network management.

RESEARCH AND PROJECTS

SENTHICOM - Scientific Researcher, Technical University of Cluj-Napoca, August 2026–present

- Research on secure hardware-software co-design, focusing on security-aware design methodologies, automation and AI-assisted security analysis and verification.

AI4TRUST (EU-funded project) - Researcher, Politehnica University of Bucharest, March 2023 – September 2023

- Developed and tested text-to-speech (TTS) systems for generating synthetic speech as part of a deepfake detection pipeline.
- Implemented and tested models such as DiffVC, Grad-TTS, UnitSpeech; designed feature extraction pipelines using HuBERT/XLSR embeddings and k-means clustering.

SIPOCA 704 - Technology Expert, Technical University of Cluj-Napoca, March 2021 – August 2022

- Taking part in the project "Strategic framework for the adoption and use of innovative technologies in public administration 2021-2027 - solutions for streamlining the activity" implemented by the Authority for the Digitization of Romania, in partnership with the Technical University of Cluj-Napoca.
- Organized national workshops with academia, industry, and government stakeholders on AI adoption and Open Science in public administration.
- Contributed to Romania's strategic framework for participation in the European Open Science Cloud (EOSC) and High-Performance Computing (HPC) networks.

PERSONAL INFO

✉ Stefania.Benea@com.utcluj.ro

🌐 <https://github.com/stefaniabenea>

🌐 www.linkedin.com/in/stefania-barburiceanu-9452259b

PROFILE SUMMARY

University Lecturer and Researcher with a PhD in Machine Learning, specialized in image and texture classification. Experienced in applied research projects (hyperspectral image analysis, audio generation) and proficient in deep learning frameworks (PyTorch, scikit-learn).

SKILLS

Programming:

- Python

Machine Learning and Deep Learning:

- PyTorch, scikit-learn, Transformers (Hugging Face)
- Model training, evaluation, hyperparameter tuning, langchain

Data Analysis and Visualization:

- NumPy, pandas, matplotlib, seaborn

Cloud and MLOps:

- AWS (S3, SageMaker), Git, unit testing (pytest, monkeypatch, mocker), Docker (Compose, Docker Model Runner)

Domains:

- Computer Vision, NLP, Audio Processing (TTS)

Soft Skills:

- Research & Problem Solving, Teaching & Mentoring

LANGUAGES

- Romanian – Native
- English – C1
- French – B2

Honors & Awards

- Best Bachelor Thesis in the 1st committee – Technical University of Cluj-Napoca (2016)
- Top of Class Graduate – MSc in Signal & Image Processing (2018)
- PhD in Machine Learning – Summa cum laude (2022)
- Multiple prizes at UTCN Scientific Communication Symposium (2015, 2016, 2019) for image classification research.
- Honorable mention (4th Prize) diplomas at the National Phase of the Applied Mathematics Contest "Adolf Haimovici" (2011, 2012).

Certifications

- Postgraduate training program - Training program for career guidance, communication, innovation and creativity and competitive development (2022)
- Postgraduate training program - Entrepreneurial training program (2022)
- Psychopedagogical training program levels I and II

VINIVITIS (Research project with industry collaboration) - Research Assistant,
Technical University of Cluj-Napoca, November 2018 – May 2021

- Developed machine learning methods for hyperspectral image classification, with robustness to noise and geometric transformations.
- Contributed to a system for superior valorization of wine by-products through advanced image analysis.

Industrial Collaboration Project, Technical University of Cluj-Napoca and Tenaris Silcotub, Jan 2015 – Jul 2015

- Selected to join a small team of professors and students for an industry collaboration project.
- Developed an application for classifying industrial ferrous materials using C++, OpenCV and Qt.
- Experience sparked further research in texture and image classification, later pursued in Bachelor, MSc and PhD theses.

EDUCATION

PhD in Machine Learning, Technical University of Cluj-Napoca, 2018–2022

Thesis: Research and contributions to texture classification using classical and deep learning-based techniques

- Proposed novel feature extraction methods for texture classification, with applications in precision agriculture, volumetric data and hyperspectral image analysis.

MSc in Signal & Image Processing / Engineering for image and signal processing - Double Degree Program, University of Bordeaux (France) and Technical University of Cluj-Napoca, 2016-2018

Thesis: Texture descriptors for image classification

BSc in Engineering (Faculty of Electronics, Telecommunications and Information Technology - English section), Technical University of Cluj-Napoca, 2012-2016

Thesis: Texture classification using mobile devices

High School Diploma in Natural Sciences (bilingual English section), Gheorghe Lazar National College, Sibiu, 2008-2012

PUBLICATIONS

- Author/co-author of peer-reviewed publications in machine learning and image processing.
- Google Scholar:
<https://scholar.google.com/citations?user=6F3QdX0QPIQC&hl=ro>