

Dragoş-Florin Nastasiu

Date of birth: 23/01/1996 | **Nationality:** Romanian | **Gender:** Male | **Phone:** (+40) 758740319 (Mobile) | **Email address:** dnastasiu@gmail.com | **Address:** Bucharest, Romania (Home)

WORK EXPERIENCE

01/06/2023 - CURRENT - BUCHAREST, ROMANIA

SEF LABORATOR MILITARY TECHNICAL ACADEMY "FERDINAND I"

- Digital signal processing, wireless communications, and mobile app development
- Microcontrollers, GPUs, acquisition and control systems
- Developed curriculum to enhance students' understanding and practical skills in the field.
- Python and machine learning frameworks (SciPy, TensorFlow, PyTorch, and PyG) used for time-series and image classification
- Anomaly detection algorithms developed in Python and Matlab for time-series and images
- Feature engineering of time series through advanced data-driven methods

01/10/2019 - 01/06/2023 - BUCHAREST, ROMANIA

OFIȚER SPECIALIST MILITARY TECHNICAL ACADEMY "FERDINAND I"

- Conducted research in signal and image processing, specializing in image reconstruction across various technologies.
- Implemented data-driven tools like EMD and Phase Diagram for image noise removal and enhancement.
- Wavelet-based approaches for image decomposition and characterization under different view-point variations.

EDUCATION & TRAINING

01/10/2020 - 29/05/2024

PHD- UNIVERSITE SAVOIE MONT-BLANC

- Signal and Image processing using the concept of Phase Diagram - preprocessing individual THz pulses for multiplicative noise removal and, image reconstruction considering the problem of amplitude estimation in imaging systems
 - Image enhancement techniques
 - View-point variation challenge solved through invariant versions of WPD and novel feature extraction techniques: N-directional entropy, N-zone entropy and 4-channel entropy aggregation with sub-band localization
 - Image classification using ML and DL approaches: SVM, kNN, Ensembles, NN and Graph Neural Networks.
 - extensive Matlab code for image processing and Python for classification and clustering (Keras, DGL with PyTorch backend for ML and DL)
- Field(s) of study:**Signal, Image, Speech and Telecommunications | **Thesis:** New methods of identification and authentication in THz domain

30/11/2018 - 30/11/2020 - BUCHAREST, ROMANIA

MASTER'S DEGREE - MILITARY TECHNICAL ACADEMY "FERDINAND I"

Collaborations with GIPSA-lab, Grenoble, France tackling the view-point variation problem in Computer Vision.

- image decomposition and feature extraction; image enhancement and denoising
- Matlab, PyTorch

Field(s) of study:Electronics, Telecommunications and Information Technologies | **Thesis:** Artificial intelligence in video communication systems

30/11/2014 - 30/11/2018 - BUCHAREST, ROMANIA

BACHELOR DEGREE- MILITARY TECHNICAL ACADEMY "FERDINAND I"

Field(s) of study:Electronics, Telecommunications and Information Technologies | **Thesis:** Remote monitoring system for electrical grids

SKILLS

Programming Skills

GCP - Google Cloud Platform | Node.js, React.js | Experience in JS, Angular, HTML and CSS | Experience in Matlab and Python | Basic knowledge in C/C++ | Javascript(Nodejs, Expressjs)

Artificial Intelligence

Experience with Jupyter Notebook environment | Advance knowledge in Machine Learning and Deep learning | Experience with Computer Vision tools in Matlab and PyTorch | Experience with Matlab App Designer | Experience with Matlab and external libraries (LibTiePie) for signal and image processing | Frameworks & Libraries: OpenCV, Sci-kit learn, NumPy, Pandas, SciPy, Matplotlib. | Experience with PyTorch, Keras and DGL (for graph processing) for DL

Data Science

Experience with statistical tool of analysis | PostgreSQL | Experience with data-driven tools of signal analysis (Phase Diagram and EMD) | Experience with time-frequency analysis

● CONFERENCES & SEMINARS

03/10/2024 - 04/10/2024 Bucharest

15th International Conference on Communications (COMM)

16/05/2022 - 19/05/2022 La Grande Motte (France)

French-German Terahertz International Conference

07/06/2022 - 10/06/2022 Limoges (France)

Journées Nationales Microondes 2022

29/08/2022 - 02/09/2022 Belgrade, Serbia

EUSIPCO - 30th European Signal Processing Conference

06/09/2022 - 09/09/2022 Nancy, France

GRETSI - XXVIIIème Colloque Francophone de Traitement du Signal et des Images

29/08/2021 - 03/09/2021 Chengdu - China

The 46th International Conference on Infrared, Millimeter and Terahertz Waves

20/06/2018 - 22/06/2018 Bucharest, Romania

Students' international conference "CERC" Military Technical Academy "Ferdinand I"

1st prize

23/04/2019 - 25/04/2019 Bucharest, Romania

Students' international conference "CERC" Military Technical Academy "Ferdinand I"

2nd prize

● PUBLICATIONS

[Continuous monitoring of partial discharge activities in power cables and their stimulation due to the temperature rise](#) 2025

[Signal Processing using Phase Diagram Analysis - New Perspectives in Understanding Transient Features in Data Science](#) 2024

[Movement characterization of multirotor UAV based on their acoustic signature](#) 2024

[Pipe Leaks Detection and Localization using Non-Intrusive Acoustic Monitoring](#) 2024

[Non-Intrusive Continuous Monitoring of Leaks for an In-Service Penstock](#) 2024

[Movement characterization of multirotor UAV based on their acoustic signature](#) 2024

[Pipe Leaks Detection and Localization using Non-Intrusive Acoustic Monitoring](#) 2024

[Signal Processing using Phase Diagram Analysis - New Perspectives in Understanding Transient Features in Data Science](#) 2024

[UWB Sensing for UAV and Human Comparative Movement Characterization](#) 2023

[Detection of OFDM modulations based on the characterization in the phase diagram domain](#) 2023

[A novel machine learning approach in Image Pattern Recognition under invariance constraints](#) 2022

[Low Complexity Acoustic Imaging System Based on Time of Arrivals Dynamic Estimation](#) 2021

[Phase diagram method for efficient THz images reconstructing](#) 2021

[On the potential of phase diagram analysis to identify the wide band modulations](#) 2020

● **LANGUAGE SKILLS**

Mother tongue(s): **ROMANIAN**

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1
FRENCH	B1	B1	B1	B1	B1

● **DRIVING LICENCE**

Driving licence: B

● **ERASMUS+ MOBILITIES | CO-CURRICULAR EXPERIENCE**

15/09/2020 - 15/12/2020

Advanced signal processing techniques for image analysis

Grenoble, France at Grenoble Institute of Technology

15/09/2019 - 15/12/2019

Artificial Intelligence and Neural networks

Grenoble, France at Grenoble Institute of Technology

15/09/2018 - 15/12/2018

Mobile application for Detection and Localization of Transient Signals

Grenoble, France at Grenoble Institute of Technology

15/02/2018 - 15/05/2018

Acquisition and data transmission from data unit to PC

Grenoble, France at Grenoble Institute of Technology

● **RESEARCH PROJECTS**

2024 - CURRENT

Member of Research Project - Building a collection of datasets for use in projects based on artificial intelligence algorithms in the field of national security

Links <https://deepdataromania.aimultimedialab.ro/>

2021 - 2023

Member of Research Project - Platform specialized in identifying and evaluating early warning indices for crisis management

· Video transmission and early prediction of anomalies

· Frameworks: Matlab, PyTorch

Links <https://www.27sol.ro/>

2020 - 2023

Member of Research Project - AUTHANTIC - Authentification TeraHertz

Partners : IMEP-LAHC, GIPSA Lab (Grenoble, France), TIHIVE (Meylan, France), ARJO SOLUTIONS (Le Bourget du Lac, France)

· Feature extraction and ML for signal and image classification

· Frameworks: Matlab, PyTorch

2019 - 2023

Member of Research Project – AUSTRALE - Authentification Unitaire Sécurisée dans les domaines THz et RAdiofréquences

Partners : IMEP-LAHC, GIPSA Lab (Grenoble, France), LCIS (Valence, France), CTP (Grenoble, France)

- Feature extraction and ML for signal classification
- Frameworks: Matlab, PyTorch

2021 - 2023

Member of Research Project - Identifying the unusual behavior of people in video streams

Links <https://ideneo.univ-ovidius.ro/>

● **INTRODUCTION**

About me

Experienced researcher, and engineer specializing in signal and image processing, machine learning, and telecommunications.

With a Ph.D. in Signal and Image Processing from Université Savoie Mont Blanc, my research has focused on image reconstruction, noise removal, feature engineering, and machine learning applications, particularly for security and remote sensing. I have developed advanced data processing algorithms leveraging wavelet decomposition, entropy-based feature extraction, and deep learning techniques for image classification and enhancement.

Beyond academia, I have industry and freelance experience in data science, software development:

- Machine Learning & Deep Learning – Python (TensorFlow, PyTorch, SciPy), anomaly detection, time-series classification
- Image Processing & Computer Vision – multi-resolution analysis, feature extraction, image enhancement

● **COMMUNICATION AND INTERPERSONAL SKILLS**

Confident and professional speaking abilities

Ambitious and competitive personality

Highly adaptable to different working environments

● **ORGANISATIONAL SKILLS**

Leadership

Organizational skills gained through years lived in military environment

Project Management

Planning and executing projects by setting timelines, assigning tasks, and tracking progress

Research Organization

Managing literature reviews, experimental results, and documentation in a structured way