Diana MANDACHE

PhD, Eng, R&D
data & image analysis, machine learning

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Education

2018–2022 **PhD in INFORMATICS AI/ML/CV**, *Industry-oriented fellowship (CIFRE)*, *Institut Pasteur - Bioimage Analysis Unit & LLTech SAS*, Paris, France.
"Machine learning methods applied for accelerated detection of breast cancer in biopsies imaged with novel optical tomography techniques"

2016–2017 **MSc in IMAGE ANALYSIS**, *(cursus in French)*
Université Pierre et Marie Curie (UPMC) & Télécom ParisTech, Paris, France.
- scholarship of The French Government granted on academic criteria, graduated with honours
- practical project : Compressed Sensing based denoising, a Java Plugin for Icy Bioimaging Platform

2012–2016 **BEng in COMPUTER SCIENCE**, *(cursus in English)*
University of Craiova, Faculty of Automation, Computers and Electronics, Craiova, Romania.
- merit-scholarship of The Romanian Government for academic excellence, graduated 2nd
- diploma project : Python application for simulation of analog electronic circuits with UI

2008–2012 **BAC in Mathematics & Informatics**, *Frații Buzești National College*, Craiova, Romania.

Experience

2018–present **R&D engineer**, *LLTech SAS, Paris*, image and data analysis.

2021 **teaching assistant**, *Sorbonne Université, Paris*, mentoring master's students on projects.

2020 **teaching assistant**, *Institut Pasteur de Tunis*, intensive Python course for biologists.

2017 **research intern**, *Institut Pasteur de Paris*, Bioimage Analysis Unit, implementation of a Convolutional Neural Network for detecting cancerous areas in skin biopsies imaged with novel microscopy technique.

2015 **research intern**, *Institut supérieur d'électronique de Paris (ISEP)*, Signal, Image & Telecommunication Laboratory, development of natural images reconstruction algorithm based on Compressed Sensing.

2015 **intern**, *EWI Institute, Wien, Austria*, Web design and promotion.

Skills

Tools **Python** *Keras TensorFlow Scikits Pandas NumPy SciPy Matplotlib Seaborn OpenCV Neptune.ai Jupyter etc.*
Linux, Git, HPC, Singularity, Docker

Knowledge **AI/ML/CV**
- Convolutional Neural Networks, Classification, Multiple Instance Learning, Contrastive Learning
- Biomedical Imaging
- Data Analysis and Visualization
- Object Oriented Programming, Algorithmics, Scientific Writing

Languages

Romanian native
English fluent - C1 *Cambridge Certificate*
French fluent - C1
Spanish notions - A2

Interests

arts music (blues, rock, jazz), theater, stand-up comedy
humanities ethics, linguistics
outdoors hiking, travel

Publications

1 **D. Mandache**, E. Benoit, J-C. Olivo-Marin and V. Meas-Yedid, *Cross-Modal Contrastive Learning for Robust Representation of the Extracellular Matrix in Static and Dynamic Full-Field OCT Images*, IEEE International Symposium on Biomedical Imaging (ISBI), Cartagena de Indias, Colombia, 2023.

2 **D. Mandache**, E. Benoit, Y. Badachi, J-C. Olivo-Marin and V. Meas-Yedid, *The Lifecycle of a Neural Network in the Wild : a Multiple Instance Learning Study on Cancer Detection from Breast Biopsies Imaged with Novel Technique*, IEEE International International Conference on Image Processing (ICIP), Bordeaux, France, 2022. DOI : 10.1109/ICIP46576.2022.9897596

3 O. Thouvenin, J Scholler, **D. Mandache**, M-C. Mathieu, A. Ben Lakhdar, M. Darche, T. Monfort, C. Boccara, J-C. Olivo-Marin, K. Grieve, V. Meas-Yedid, E. Benoit, *Automatic Diagnosis and Biopsy Classification with Dynamic Full-Field OCT and Machine Learning*, 2021. DOI : 10.21203/rs.3.rs-371207/v1

4 **D. Mandache**, E.Benoit, M-C. Mathieu, J-C. Olivo-Marin and V. Meas-Yedid, *Leveraging Global Diagnosis for Tumor Localization in Dynamic Cell Imaging of Breast Cancer Tissue Towards Fast Biopsying*, IEEE International Symposium on Biomedical Imaging (ISBI), Nice, France, 2021. DOI : 10.1109/ISBI48211.2021.9434110

5 **D. Mandache**, E.Benoit, J-C. Olivo-Marin, V. Meas-Yedid, *Blind Source Separation in Dynamic Cell Imaging using NonNegative Matrix Factorization applied to Breast Cancer Biopsies*, IEEE International Symposium on Biomedical Imaging (ISBI), Nice, France, 2021. DOI : 10.1109/ISBI48211.2021.9434128

6 D. Gonzalez, **D. Mandache**, J-C. Olivo-Marin, V. Meas-Yedid, *Icytomine : A User-Friendly Tool for Integrating Workflows on Whole Slide Images*, European Congress on Digital Pathology (ECDP), Warwick, UK, 2019. DOI : 10.1007/978-3-030-23937-4_21

7 **D. Mandache**, E. Dalimier, J. Durkin, A. C. Boccara, J-C. Olivo-Marin and V. Meas-Yedid, *Basal Cell Carcinoma Detection in Full Field OCT images using Convolutional Neural Networks*, IEEE International Symposium on Biomedical Imaging (ISBI), Washington, DC, 2018. DOI : 10.1109/ISBI.2018.8363689

8 A. Akbari, **D. Mandache**, M. Trocan, B. Granado, *Adaptive saliency-based compressive sensing image reconstruction*, IEEE International Conference on Multimedia & Expo Workshops (ICMEW), Seattle, WA, 2016. DOI : 10.1109/ICMEW.2016.7574688

9 **D. Mandache**, A. Akbari, M. Trocan, *Image compressed sensing recovery using intra-block prediction*, IEEE Telecommunications Forum (TELFOR), Belgrade, Serbia, 2015. DOI : 10.1109/TELFOR.2015.7377574