INES MERAOUMIA

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Postdoctoral Associate in AI for ecology and evolution

EDUCATION

PhD , Télécom Paris, Institut Polytechnique de Paris   Nov 2020 - December 2023
Deep Learning for Remote Sensing images and their interpretation
Under the supervision of Prof. Florence Tupin and Prof. Loic Denis
Key words: Deep Learning, Image Interpretation, Remote Sensing, Physical Modelization.
Member of the European project AURORA with The Artic University of Norway (UiT): 3 weeks
stay in the city of Tromsø, under the supervision of Prof. Andrea Marinoni.

MSc Mathématiques Vision Apprentissage (MVA), ENS Paris-Saclay, University Paris-Saclay   2019 - 2020
MSc in applied Mathematics for AI and Computer Vision (Research oriented).
University Paris-Saclay is ranked #1 in the Shanghai Ranking (ARWU) 2022 in Mathematics
Majors: Convex Optimization, Probabilistic Graphical Models, Bayesian Machine Learning,
Remote Sensing Data, Deep Learning, Image Denoising.

Master of Engineering, Télécom Paris, Institut Polytechnique de Paris   2017 - 2020
Télécom Paris is a leading French Grandes Ecoles, ranked #1 in Computer Science
Majors: Image Processing, Data Science

Classes préparatoires aux Grandes Ecoles PCSI/PC*, Lycée Henri IV   2015 - 2017
Intensive program in Mathematics, Physics and Engineering to enter the French Grandes Ecoles.

EXPERIENCE

Postdoctoral Associate, Vertaix, Princeton University   March 2024 - Today
AI for ecology and evolution, under the supervision of Adji Bousso Dieng

Teaching Assistant, Télécom Paris, Institut Polytechnique de Paris   Nov 2020 - Today

- Mathematics for Signal Processing: Fourier transform and recursive filtering
- Markov Random Fields for Image Processing, Bayesian analysis with MRF.
- Graph-cut optimization for image segmentation.
- Introduction to Remote Sensing Image Processing
- Board Member of the Deep Learning Group of the LTCI IMAGES lab: planning seminars and discussion about new methods in Deep Learning

Research Scientist, Télécom Paris, Institut Polytechnique de Paris   April 2020 - Nov 2020
Main topic of research: *Adaptative Regularization for SAR Tomography*

- Finding a new regularization function for tomographic inversion based on geometrical priors
- Solving numerous optimization issues with ADDM algorithms.

Data Engineer Summer internship, Natixis   July - Aug 2018

- Mastering the Hadoop technology
- Developing a Python script to change an Oracle control file into a Hadoop ingestion file.

TALKS AND SEMINARS

Introduction to Multi-temporal despeckling	Image Processing seminar, Télécom Paris, France
Multi-temporal despeckling of SAR images	Laboratoire Hubert-Curien, Saint-Etienne, France
Women in Science: doing a PhD in Artificial Intelligence	Télécom Paris, France

PRIZES AND PUBLICATIONS

Conference papers

- *Exploiting multi-temporal information for improved speckle reduction of Sentinel-1 SAR images by deep learning*, Emanuele Dalsasso, Inès Meraoumia, Loïc Denis, Florence Tupin, IGARSS 2021
- *Fast strategies for multi-temporal speckle reduction of Sentinel-1 GRD images*, Inès Meraoumia, Emanuele Dalsasso, Loïc Denis, Florence Tupin, IGARSS 2022
- *Débruitage multi-temporel d'images radar à synthèse d'ouverture par apprentissage profond auto-supervisé*, Inès Meraoumia, Emanuele Dalsasso, Loïc Denis, Florence Tupin, GRETSI 2022
- *Despeckling of Dual-Pol GRD Sentinel-1 images in Extra-Wide mode by Deep Learning*, Inès Meraoumia, Debanshu Ratha, Emanuele Dalsasso, Loic Denis, Florence Tupin, Andrea Marinoni, IGARSS 2023 (to be published)

Journal papers

- *Multi-temporal speckle reduction with self-supervised deep neural networks*, Inès Meraoumia, Emanuele Dalsasso, Loïc Denis, Rémy Abergel, Florence Tupin, TGRS 2023

- Co-recipient of the **the 2021 IEEE GRSS Symposium Prize Paper Award** for the paper *Exploiting multi-temporal information for improved speckle reduction of Sentinel-1 SAR images by deep learning*.