Erwan **Dereure**

PhD in Applied Mathematics and Image Processing

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Education

Institut Pasteur and Télécom Paris — *Paris, France*

PhD: Quantitative analysis of bioluminescent signals in preclinical imaging — *2021 - 2024*

- Under the supervision of Christophe Kervazo, Elsa Angelini and Jean-Christophe Olivo-Marin.
- Keywords: Blind-Source Separation, Non-negative Matrix Factorization, Optimization, Pharmacokinetics model

CentraleSupélec — *Gif-sur-Yvette, France*

MSC in Applied Mathematics and Computer Science — *2016 - 2020*

- Courses: Theoretical ML, Deep Learning, Statistics, Statistical Signal Processing (sound, image, voice), Bayesian Models, Robotics, Parallel Computing.

University of Lorraine — *France*

MSC in Fundamental and Applied Mathematics — *2019 - 2020*

- Courses: Partial Derivative Equations, Stochastic Calculus, Decision Theory.

Lycée Joffre — *Montpellier, France*

Classes préparatoires — *2014 - 2016*

- Intensive courses to prepare nationwide competitive exams in Mathematics, Physics and Computer Science.

Experience

CEA — *Saclay, France*

Deep Learning Research Intern — *June.2020 – Nov.2020*

- Deep Active Learning applied to Computer Vision tasks (Classification, Segmentation and Object Detection).
- Tech : Python (Pytorch, Tensorflow, Keras).

Truework — *San Francisco, California*

Software Engineering Intern — *Mar.2019 – Sep.2019*

- Responsible for the data crawling architecture to improve the exchange of sensitive data.
- Tech : Python (Django).

Hublo — *Paris, France*

Software Engineering Intern — *Aug.2018 – Feb.2019*

- Responsible for the development of the main features of a medical staff absence management platform. Adapted for the development of the mobile application.
- Tech : React, Node, Redis, PostgreSQL.

Skills

Software Engineering Python (Pytorch, Numpy, Scikit-learn, Tensorflow, Keras)

Tools Git, Linux, slurm, LaTeX

Web Django, NodeJs, React

Languages French, English

Talks

Plateformes d'Imagerie du Vivant, LIOPA Paris Descartes *Paris , France*

Improved quantification of optical imaging data *Jan.2022*

Publications

Conference Papers

Wavelet-based sparse non-negative matrix factorization for bioluminescent imaging unmixing

Erwan Dereure, Christophe Kervazo, Johanne Seguin, Anikitos Garofalakis, Nathalie Mignet, Elsa Angelini, Jean-Christophe Olivo-Marin

2024 IEEE 21st International Symposium on Biomedical Imaging (ISBI)

Sparse Non-Negative Matrix Factorization for Preclinical Bioluminescent Imaging

Erwan Dereure, Christophe Kervazo, Johanne Seguin, Anikitos Garofalakis, Nathalie Mignet, Elsa Angelini, Jean-Christophe Olivo-Marin

2023 IEEE 20th International Symposium on Biomedical Imaging (ISBI)

Factorisation Non-Négative de Matrice pour séparation de sources en Imagerie par Bioluminescence préclinique

Erwan Dereure, Elsa Angelini, Anikitos Garofalakis, Johanne Seguin, Nathalie Mignet, Jean-Christophe Olivo-Marin

GRETSI'22: XXVIIIème Colloque Francophone de Traitement du Signal et des Images

Journal Papers

Wavelet transform based non-negative matrix factorization for biolumines- cence imaging with warping variability

Erwan Dereure, Christophe Kervazo, Johanne Seguin, Anikitos Garofalakis, Nathalie Mignet, Elsa Angelini, Jean-Christophe Olivo-Marin

In preparation, 2024

Teaching

Télécom Paris *France*

Teaching Assistant *2022 - 2024*

Labs, projects supervision and tutoring

- Optical-flow methods for video processing
- Image registration
- Image segmentation for Biomedical imaging
- Patch-based methods for Source Separation in Biomedical imaging
- Mathematical Analysis
- Energy transition and performance