Damien Bonnet-Eymard

PhD student in Scientific Machine Learning @ KU Leuven | MSCA Fellow

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I am a PhD researcher with a solid background in both machine learning and physics, developing state-of-the-art Physics-Informed Neural Networks to address complex physics problem. With a strong proficiency in Python and experience as an open-source contributor, I am seeking a challenging position where I can apply my skills in scientific machine learning.

Experience

PhD in SciML @ KU Leuven (2021 - Present)

> Marie Skłodowska-Curie Actions (MSCA) fellow, within the GREYDIENT project, developing grey-box models combining data-driven and physics-based approaches. Research focuses on efficient and robust Physics-Informed Neural Networks (PINNs) for solid mechanics, including:
>
> **Uncertainty Propagation:** Propagating microscale uncertainties to the mechanical response of composite materials.
>
> Bonnet Eymard et al. ISMA/USD, 2024.
>
> **Material Parameter Identification:** Recovering material properties from full-field measurements.
>
> Bonnet Eymard et al. ISRERM, 2024.

Data Analysis Internship @ EDF (PRISME R&D) (2020)

> Developed tools within the modeling and monitoring R&D department:
>
> - New component for the ThermoSysPro library (Modelica) modeling nuclear reactor core heterogeneity.
> - Regularized regression model (pandas, Scikit-learn) predicting power plant operating points.

Data Processing Internship @ Diocles (2019 - 2020)

> Worked within an international team on processing data from body scanners:
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> - Processed 3D data (mesh, point cloud) using MATLAB for indicator extraction.
> - Implemented a heat kernel signature algorithm for shape analysis.
> - Designed and implemented a measurement acquisition error pipeline.

Education

KU Leuven (2021 -)

PhD student under supervision of Prof. David Moens and Prof. Matthias G. R. Faes

Ecole Centrale de Lyon (2017 - 2021)

Degree (Master): General Engineer - Computer Science Option

Main courses: Fluid/Continuum Mechanics, Statistics, Signal Processing, Automation, AI and Machine Learning

Classe Préparatoire Sainte-Geneviève (2015 - 2017)

Main courses: Maths, Physics, Chemistry

Tech Stack

Machine Learning	Data Science	Physics
PyTorch; JAX; Cuda; DeepXDE*	Scikit-learn; Pandas; R; MATLAB	FEniCS; Modelica; Abaqus

*active contributor

Interests & Side Projects

Sports: Tennis, running, and cycling.

Programming: Open-source contributor. Several side-projects, including:

- **Routing Algorithm:** A routing algorithm that takes safety into account.
- **Image Mosaic:** Creating an image mosaic using a collection of images, written in Matlab.
- **Particle Swarm Optimization:** Visualization of the PSO algorithm, written in Matlab.