

Brieuc Antoine dit Urban

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PROFILE

1st year PhD student at IFPEN, ONERA, INRIA and LJLL, I am working on explainability and adaptation of Graph Neural Network (GNN) methods to generate incomplete factorization of linear systems stemming from PDEs discretization.

EDUCATION

Master 2: Applied mathematics and Statistics at Dauphine University/ENS Paris 2023 – 2024

English Track | High Honors ("Mention Bien")

Courses: Optimization, Advanced Learning, Mathematics for Deep Learning, Non Convex Inverse Problems, Topological Data Analysis, Computational Methods and MCMC, High Dimension Statistics, Applied Bayesian Statistics, Bayesian Machine Learning.

Master 1: Applied Mathematics at Dauphine University 2022 – 2023

Major in Statistics | English Track | High Honors ("Mention Bien")

Relevant courses: Optimization, C++, Numerical methods for ODEs and SDEs, Stochastic Processes, Monte Carlo Methods, Linear Models, Statistical Learning, Data Analysis.

Master Thesis: Statistical tests for the recognition of Stochastic Processes in time series (Highest Honors)

Bachelor of Science in Mathematics and Informatics at Dauphine University 2018 – 2022

Fundamentals of Algebra, Analysis, Probability, Statistics and Informatics.

Gap Year: 1 year studying Literature and Philosophy at Sorbonne Nouvelle University.

EXPERIENCE

IFP Énergies nouvelles | Research Intern | Rueil-Malmaison April 2024 – August 2024

- Development of GNNs-based methods to infer preconditioners for large linear systems arising from the discretization of PDEs.
- Conduction of sensitivity analyses with PyTorch Geometric and experimental comparisons with traditional numerical methods, such as Incomplete LU factorization.

Pridwen (Startup) | Math consultant | London (Remote work) May 2023 – August 2023

- Implemented constrained optimization methods on Python.
- Participated in the design of a stochastic control strategy and its implementation on Python.

Private tutor in mathematics | Paris 2018 – now

- Mathematics tutoring from high school to second year of Bachelor's degree in mathematics.

SKILLS

Languages: French (native), English (C1), Spanish (A2).

Programming Languages: *Advanced level* – C++, Python, R | *Intermediate level* – Matlab, SQL.

Frameworks: PyTorch, PyTorch Geometric, Keras, Scikit-Learn.

MISCELLANEOUS

Volunteering: Cheer Up Dauphine (University Charity) 2019 – 2022

- Organized charity actions such as visits to hospitalized students in Paris and fundraising campaigns.

Hobbies: Rowing, Hiking, classical and contemporary Literature.