Guillaume HOURY

PhD Candidate in Medical Imaging in HeKA team, INRIA.

Personal Information

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Professional and Research Experience

2024 – Ongoing **PhD Candidate in Medical Imaging and Computational Geometry**
HeKA team, INRIA Paris, France. Supervisors: Prof. F-X. Vialard and Dr. J. Feydy.
Optimal transport techniques for robust image registration, with applications to fracture reconstruction.

May – Oct. 2023 **Research Internship in Machine Learning**
Okinawa Institute of Science and Technology (OIST), Japan. Supervisor: Prof. Makoto Yamada.
Optimal transport heuristics for similarity search between text documents.

2021 – 2022 **10-Month Project Management Mission**.
SNCF Voyageurs, France.
Change management and tool development for crisis management systems.

Apr. – July 2021 **Research Internship in Topological Data Analysis**
TU Graz, Austria. Supervisor: Prof. Michael Kerber.
Complexity analysis of the matrix reduction algorithm used to compute persistent homology.

June – Aug. 2020 **Research and Development Internship in Deep Learning**
Réseau de Transport d'Electricité (RTE), France.
Development of deep learning techniques for voltage control in electrical grids.

Education

2021 – 2024 **Corps des Mines Training Program**
Elite public engineering program focused on economics, industry, and digital technologies.

2022 – 2023 **Master in Mathematics, Vision, and Learning – ENS Paris-Saclay**
Graduated with highest honors.

2018 – 2021 **Ecole polytechnique**
Specialization in Computer Science – Data Science. Valedictorian.

2016 – 2018 **Preparatory Classes – Lycée Louis-le-Grand**
Intensive Math and Physics program preparing for the national competitive exam for entry to engineering schools.

Publications

2025 **Untangling Vascular Trees for Surgery and Interventional Radiology**.
G.H., T. Boeken, S. Allassonnière and J. Feydy. MICCAI 2025.

2024 **Fast 1-Wasserstein Distance Approximations using Greedy Strategies**.
G.H., H. Bao, H. Zhao and M. Yamada. AISTATS 2024.

2022 **Average Complexity of Matrix Reduction for Clique Filtrations**.
B. Giunti, G.H. and M. Kerber. ISSAC 2022.
Awarded "Distinguished Student Author Award of ISSAC 2022".

Preprint **Keeping it Sparse : Computing Persistent Homology Revised**.
U. Bauer, TB Masood, B. Giunti, G.H., M. Kerber and A. Rathod.