Théophile Sautory

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EDUCATION

UC BERKELEY
MS in Mechanical Engineering (PhD track)
Exp. May 2023 | Berkeley, CA
GPA: 3.9/4.0.
- Graduate Division Block Grant Award, Mechanical Engineering.
- Thesis: Super-resolution of 4D blood-flow images with physics-informed machine learning for personalized medicine.

IMPERIAL COLLEGE LONDON
MS in Computer Science, Artificial Intelligence & Machine Learning
Sep. 2020 | London, UK
GPA: 4.0/4.0.
- Thesis: Neuro-symbolic video question answering with spatio-temporal properties.

BEng in Mechanical Engineering
Jun. 2019 | London, UK
GPA: 4.0/4.0.
- 2016-19 Imperial College London Engineering Dean's List (top 5%).
- Thesis : Turbulence modelling with artificial neural networks.

SKILLS

PROGRAMMING
Experienced:
Python • Julia • MATLAB
Familiar:
C/C++ (CUDA/MPI/OpenMP)

LIBRARIES
PyTorch • TensorFlow • Scikit-learn
Keras • OpenCV • Matplotlib
Numpy • Scipy • Pandas

TOOLS
Git • Github • LaTeX • GCP
Unix environment • Slurm
Abaqus • Solidworks • Fluent

EXTRACURRICULAR

Basketball
Vice-president of the Imperial College Basketball Society, and team captain, leading the 120 members to win Imperial Sports Club of the Year (2018-2019).

EXPERIENCE

ANSYS | Machine Learning Research Intern, CTO Office
May 2022 - Aug. 2022 | San Jose, CA
- Worked on the development of novel PDE solvers by combining Ansys Fluent with deep learning.
- Designed autoencoders and their training mechanisms for multi-objective optimization in the context of physics-informed machine learning.

UK NATIONAL CRIME AGENCY | Research Assistant
Apr. 2021 – Jul. 2021 | London, UK
- Built Siamese autoencoders trained with contrastive loss for crime linkage, decreasing by a factor of ~ 5 the number of cases to compare.
- Presented our algorithms to crime analysts, and mentored them for their use.

SCORTEX | Machine Learning & Mechanical Engineer
Sep. 2020 – Apr. 2021 | Paris, France
- Tested various machine learning models on prototype machines to evaluate their performance and latency with the hardware solution.
- Created datasets with distribution shifts to increase models robustness.
- Improved the ROC-AUC performance in anomaly detection on images for the MVTec dataset by 5%, leveraging descriptors of pre-trained networks with generative models and data augmentation.

L'ORÉAL | Mechanical Engineering Intern
Jun. 2017 - Aug. 2017 | Lille, France
- Designed a hand wheel machine to measure mascaras effects in increasing eyelash volume.
- Performed the quality control of suppliers' products and formalized official reports for decision making.

SELECTED PROJECTS

BIONIC HAND FOR DIGITAL INTERFACE USE
Sep. 2018 – Jun. 2019
Led a group of 5 to design, manufacture and test an innovative and low-cost (£170) bionic prosthetic hand. We worked with a below-elbow amputee to construct a product which was actuated by the users' electromyogram signals.

EMBEDDED C FOR MICROCONTROLLERS
Sep. 2018 – Dec. 2018
Developed an autonomous robot, programmed in C, to detect and reach an infrared emitting device. In a pair, we designed and assembled the printed circuit board.

SELECTED PUBLICATIONS

[1] M Law, **T Sautory**, L Mitchener, K Davies, M Tonkin, J Woodhams, D Alrajeh (2022): Learning to Rank the Distinctiveness of Behaviour in Serial Offending, International Conference on Logic Programming and Nonmonotonic Reasoning

[2] **Theophile Sautory**, Nuri Cingillioglu, Alessandra Russo (2021): HySTER: A Hybrid Spatio-Temporal Event Reasoner, Thirty-Fifth AAAI Conference on Artificial Intelligence Workshop on Hybrid Artificial Intelligence

[3] Alvaro Prat, **Theophile Sautory** & S. Navarro-Martinez (2020): A Priori Sub-grid Modelling Using Artificial Neural Networks, International Journal of Computational Fluid Dynamics