Théophile Sautory

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Education

University of California, Berkeley **Exp. May 2023**

MS in Mechanical Engineering, *GPA:3.91/4.00.*

Graduate research in the Biomechanical Engineering Computational Lab on complex blood flows.

Imperial College London

MS in Computer Science, Artificial Intelligence & Machine Learning, *GPA:4.00/4.00.* **Sep. 2020**

Relevant courses: Robotics, Artificial Intelligence, Mathematics for Machine Learning, Deep Learning.

BSc in Mechanical Engineering, *GPA:4.00/4.00.* **Jun. 2019**

Relevant courses: Mathematics, Mechatronics, Embedded C, Design make and test, System Design Optimization.

Experience

Ansys **May. 2022 – Aug. 2022**

Machine Learning Research Intern, CTO Office *San Jose, CA*

- Designed autoencoders and training mechanisms for multi-objective optimization in physics-informed machine learning.
- Led the research on merging Ansys Fluent with deep learning for novel PDE solvers with the help of senior researchers.

UK National Crime Agency **Apr. 2021 – Jul. 2021**

Research Assistant *London, UK*

- Built data analysis and visualization programs with Python, including logistic regressions and PCA, resulting in a 5x reduction in the number of cases to compare.
- Collaborated with Psychology Professors and crime analysts to consider human well-being and bias in the data.

Scortex **Sep. 2020 – Apr. 2021**

Machine Learning Engineer *Paris, France*

- Tested various machine learning models on our hardware prototype to evaluate their performance and latency.
- Improved the ROC-AUC performance in anomaly detection on images for the MVTec dataset by 5%, using PyTorch, transfer learning and data augmentation.

L'Oréal **Jul. 2017 – Aug. 2017**

Mechanical Engineering Intern *Paris, France*

- Implemented an eyelash classification algorithm to study personalized effects of applying mascara on eyelash health.
- Built a hand wheel machine to measure mascaras effect on eyelash volume and fall out for different eyelash classes.
- Performed the quality control of suppliers' products by performing fatigue and drop tests, and formalized official reports for decision making.

Health Technologies Projects

Super-resolution of PC-MRI blood flow images | *Software development, health data analysis* **May. 2022 – current**

- Combining machine learning and the Navier-Stokes equations to denoise, super-resolve PC-MRI blood flow images and recover blood pressure variation.
- Building an associated web app using Python, Plotly and Dash, to enhance clinical practitioners' decision-making through data visualization.

Bionic hand for digital interface use | *Product Design Engineer, health data analysis* **Sep. 2018 – Jun. 2019**

- Designed and manufactured an innovative and low-cost bionic hand using CAD (SolidWorks) and 3D printing.
- Collected and analyzed electromyogram (EMG) signals from a below-elbow amputee to drive motor actuation.
- Created the printed circuit board to power and control the motor for testing and user feedback.
- Our patient qualified the bionic hand as "the best [he had] seen so far by miles" in terms of fluidity of movement.

Technical Skills

Design: CAD (Solidworks), Prototyping (3D printing, machining), FEM / CFD (Abaqus, Fluent, Star-CCM+), Arduino.
Coding: *Experienced:* Python, Julia, MATLAB, Linux, LateX. *Familiar:* C/C++ (CUDA/MPI/OpenMP).

Selected Publication

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.

Extracurricular

Leadership: 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).
Hobbies: Poetry, Hiking, Road biking, Tennis, Basketball.