

# THÉOPHILE SAUTORY

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## Education

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### 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.*

## Work Experience

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### 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

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### 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

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**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), SQL.

## Selected Publication

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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

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**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.