Paul Dubois

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Personal Profile

- Studying **mathematics** in MSci program in Oxford
- Developed **teamwork** through many group projects
- Fervent adept of **computer science**, that I learned on my own
- Have some **experience in research** in both math and computer science through different projects

Education

Oxford University (United Kingdom)   2020 - 2021
MSci Mathematical Sciences

<u>Courses</u>: Analytic Topology, Category Theory, Approximation of Functions, Deep learning Theories, Networks, Random Matrix Theory, Dissertation on Random Fractals and Branching Processes

University College London (United Kingdom)   2016 - 2020
MSci Mathematics
Grade average 85%

<u>Research project</u> on Modular forms mod 2: "Governing Fields for the Hecke Algebra"
<u>Talk</u> (1h, to ≈25 students) on random walks and minimal surface, presenting my own research
<u>Mentor</u> of a group of 15 students
<u>Key courses</u>: Probability, Measure Theory, Spectral Theory, Functional Analysis, Multivariable Analysis, Differential Geometry, Analytic Number Theory, Graph Theory and Combinatorics, Elliptic Curves, Commutative Algebra, High-Performance Computing, Evolutionary Games and Population Genetics
1st Prize for best student group presentation of 2nd year research project
Winner of undergraduate prize in mathematics in 1st year (ranked 6th)

Work & Research Experience

Internship in photogrammetry   *Jul - Sept 2020*
At Room Furnisher (London, UK)

A ten weeks paid internship in the Startup Room Furnisher

- **Coding:** Improved and brought together open source projects to fit the needs of the startup
  Used python as a scripting language, and learnt to read documentations.
- **Human skills:** Work remotely with weekly reports and online meetings.

Internship in digitalization   *Jun - Sept 2019*
At Airbus (Toulouse, France)

A four-month paid internship in high-technology well respected aircraft French company

- **Coding:** I helped in the digital transition as a digital "champion"
  Creating interactive dashboards using web technologies (HTML, CSS, JS) and data base requests (SQL) for full digital collaboration
  Automating task using Python, saving hours to co-workers
- **Human skills:** Work in a team with collaborators

Research Assistant (at distance)   *Jan - Mar 2018*
for Susana Vasserman (PhD at Harvard, Economics Department, now assistant prof. at Stanford)

Doing Textual Data Analysis with Python

Research Assistant   *Nov 2017*
for Pierre Dubois (Professor at Toulouse School of Economics)

Scrapping data for economic analysis of Antibiotic Resistance, using asynchronous requests

Internship on Artificial Intelligence & Logic   *Aug - Sept 2017*
At research lab in computer science "IRIT" of University of Toulouse (France)

Supervision by Prof. Martin Strecker. Programed Artificial Intelligence using various techniques: Genetic Algorithms, Reinforcement Learning, Neural Networks, Constraint Programming

Hackathons

Make Harvard *(Hackathon in Harvard)*	***Feb 2020***

Developed a headphone extension to change the perceive spatial position of the sound source heard

Make Harvard *(Hackathon in Harvard)*	***Feb 2019***

Developed hardware which translates real-life rotations into rotations in a modelling software

Oxford Hack *(Hackathon in Oxford)*	***Nov 2019***

Developed a tool that merges information from many documents into a single document

Porticode 3.0 - Prize Winner *(Hackathon in UCL)*	***Nov 2019***

Created in 90's style website and game from scratch

Winner of Innovation Competition « Innovez » - 1000€	***Feb 2017***

In the French scientific review "Science et Vie Junior" (SVJ n°329)

Volunteering

Active member in educative FabLab info@lèze	**2014 - Present**

- **Led workshops** to teach secondary school students 3D modelling and web development
- **Directed a mini-summer camp** (3 days) for secondary school students, making them build wireless audio speakers, touching Computer Aided Design and electronic
- **Designed, build & realized** projects on my own (square wheels bike, latex pad for math students, portable 2nd screen for laptops, Morse decoder…)
- **Led a popular science talk** for non-scientific audience (in French): "De marches aléatoires à surfaces minimales"

European Scouting	**2011 - Present**
• **Webmaster** (Reporting major activities on the official web site of the group)	2017 - Present
• **Chief** (managed 25 teenagers)	2016 - 2018
• **Leader** of a "patrol" (group of 7 teenagers) – with *treetop patrol* distinction	2015 - 2016

Other Work Experience

Kitchen clerk in the restaurant "La Plage", Venerque (France)	Jun–Jul 2018
Dishwasher in the restaurant "La Plage", Venerque (France)	Jun–Jul 2017

Skills gained: Teamwork, working under time pressure & efficiency

Technology Skills

GitHub repository: https://github.com/pauldubois98   Web Page: https://pauldubois98.github.io/

- **Python** Oriented Object Programming (OOP), web scraping (with Requests, Ajax, or API), multi-threading, Graphical User Interfaces (GUI, with Tkinter & PyGame), data cleaning/formatting, data analysis (with Pandas, MatPlotLib, using Jupyter), High-Performance Computing (HPC, with Numba, NumPy, NumExpr, OpenCL), textual analysis, a*dvanced knowledge overall*
- **HTML, CSS & JavaScript** producing smart web interfaces form interactive dashboards, to online games
- **Julia** fast mathematical computing, creation of public package ("ModularFormsModuloTwo")
- **Java & Kotlin** (Used for *Android Apps*, "Cauchy-Crofton App" for example, which allows to apply an abstract math formula to real life)
- **C/C++** (Sokoban game, also used for hardware electronics)
- **Latex** (and presentations with *Beamer*)
- **Microsoft Office** including *Excel* (macros), *PowerPoint* and *Word*
- **Electronics** using most common programmable microprocessors such as *Arduino* or *ESP* (created a wide range of objects from remote controlled boat to precision laser timer for races)
- **Computer-Aided technologies (CAx)** CAD (using *OnShape*) and CAM (doing *3D printing* and *laser cutting)*

Others

French: *Native Speaker*	**English:** *Fluent*	**Driving License**