

# 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

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## Education

### Oxford University (United Kingdom)

2020 - 2021

MSci Mathematical Sciences

Courses: Analytic Topology, Category Theory, Approximation of Functions, Theories of Deep learning, Additive and Combinatorial Number Theory, Networks, Computational Algebraic Topology

### University College London (United Kingdom)

2016 - 2020

MSci Mathematics

**Grade average 85%**

Research project on Modular forms mod 2: "Governing Fields for the Hecke Algebra"

Talk (1h, to  $\approx 25$  students) on random walks and minimal surface, presenting my own research

Mentor of a group of 15 students

Key courses: 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

*1<sup>st</sup> Prize for best student group presentation of 2<sup>nd</sup> year research project*

*Winner of undergraduate prize in mathematics in 1<sup>st</sup> year (ranked 6<sup>th</sup>)*

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## 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

<b>Make Harvard (Hackathon in Harvard)</b>	<b>Feb 2020</b>
Developed a headphone extension to change the perceive spatial position of the sound source heard	
<b>Make Harvard (Hackathon in Harvard)</b>	<b>Feb 2019</b>
Developed hardware which translates real-life rotations into rotations in a modelling software	
<b>Oxford Hack (Hackathon in Oxford)</b>	<b>Nov 2019</b>
Developed a tool that merges information from many documents into a single document	
<b>Porticode 3.0 - Prize Winner (Hackathon in UCL)</b>	<b>Nov 2019</b>
Created in 90's style website and game from scratch	
<b>Winner of Innovation Competition « Innovez » - 1000€</b>	<b>Feb 2017</b>
In the French scientific review "Science et Vie Junior" (SVJ n°329)	

## Volunteering

<b>Active member in educative FabLab info@lèze</b>	<b>2014 - Present</b>
<ul style="list-style-type: none"> <li>• <b>Led workshops</b> to teach secondary school students 3D modelling and web development</li> <li>• <b>Directed a mini-summer camp</b> (3 days) for secondary school students, making them build wireless audio speakers, touching Computer Aided Design and electronic</li> <li>• <b>Designed, build &amp; realized</b> projects on my own (square wheels bike, latex pad for math students, portable 2<sup>nd</sup> screen for laptops, Morse decoder...)</li> <li>• <b>Led a popular science talk</b> for non-scientific audience (in French): "De marches aléatoires à surfaces minimales"</li> </ul>	
<b>European Scouting</b>	<b>2011 - Present</b>
• <b>Webmaster</b> (Reporting major activities on the official web site of the group)	2017 - Present
• <b>Chief</b> (managed 25 teenagers)	2016 - 2018
• <b>Leader</b> of a "patrol" (group of 7 teenagers) – with <i>treetop patrol</i> distinction	2015 - 2016

## Other Work Experience

<b>Kitchen clerk</b> in the restaurant "La Plage", Venerque (France)	Jun–Jul 2018
<b>Dishwasher</b> in the restaurant "La Plage", Venerque (France)	Jun–Jul 2017
<u>Skills gained</u> : Teamwork, working under time pressure & efficiency	

## Technology Skills

GitHub repository: <a href="https://github.com/pauldubois98">https://github.com/pauldubois98</a>	Web Page: <a href="https://pauldubois98.github.io/">https://pauldubois98.github.io/</a>
<ul style="list-style-type: none"> <li>• <b>Python</b> Oriented Object Programming (OOP), web scraping (with Requests, Ajax, or API), multi-threading, Graphical User Interfaces (GUI, with Tkinter &amp; PyGame), data cleaning/formatting, data analysis (with Pandas, Matplotlib, using Jupyter), High-Performance Computing (HPC, with Numba, NumPy, NumExpr, OpenCL), textual analysis, <i>advanced knowledge overall</i></li> <li>• <b>HTML, CSS &amp; JavaScript</b> producing smart web interfaces form interactive dashboards, to online games</li> <li>• <b>Julia</b> fast mathematical computing, creation of public package ("ModularFormsModuloTwo")</li> <li>• <b>Java &amp; Kotlin</b> (Used for <i>Android Apps</i>, "Cauchy-Crofton App" for example, which allows to apply an abstract math formula to real life)</li> <li>• <b>C/C++</b> (Sokoban game, also used for hardware electronics)</li> <li>• <b>Latex</b> (and presentations with <i>Beamer</i>)</li> <li>• <b>Microsoft Office</b> including <i>Excel</i> (macros), <i>PowerPoint</i> and <i>Word</i></li> <li>• <b>Electronics</b> using most common programmable microprocessors such as <i>Arduino</i> or <i>ESP</i> (created a wide range of objects from remote controlled boat to precision laser timer for races)</li> <li>• <b>Computer-Aided technologies (CAx)</b> CAD (using <i>OnShape</i>) and CAM (doing <i>3D printing</i> and <i>laser cutting</i>)</li> </ul>	

## Others

<b>French: Native Speaker</b>	<b>English: Fluent</b>	<b>Driving License</b>
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