Paul Dubois

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Personal Profile

- Studying **mathematics** in MSci program in UCL
- 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

University College London, London (United Kingdom) **2016 - 2020**

MSci Mathematics

4th Year: Expected average +80%

Courses: Advanced Modelling Techniques, Spectral Theory, High-Performance Computing, Representation Theory, Analytic Number Theory, Evolutionary Games and Population Genetics
Extra courses: Modular Forms, General Relativity, Cosmology
Research project on Modular forms mod 2: "Governing Fields for the Hecke Algebra"
Talk (1h, to ~25 students) on random walks and minimal surface, presenting my own research
Mentor of a group of 15 students in 1st year at UCL

3rd year: Grade average 85%

Courses: Functional Analysis, Graph Theory and Combinatorics, Algebraic Number Theory, Probability, Measure Theory, Galois Theory, Multivariable Analysis, Elliptic Curves
Extra courses: Differential Geometry, Commutative Algebra, Mathematical Logic
Group project on Galois theory, leading to an oral presentation
1st Prize for best student group presentation of 2nd year research project

2nd year: Grade average: 82%

Courses: Complex analysis, Real Analysis, Groups and Rings Algebra, Linear Algebra, Number Theory, Fluids Mechanics, Mathematical Methods
Extra course: Probability and Statistics
Group project in geometry on Cauchy-Crofton Formulae

1st year: Grade average 86% *(ranked 6th) – Winner of Undergraduate Prize in Mathematics*

Courses: Analysis, Algebra, Mathematical Methods, Applied Mathematics, Newtonian Mechanics
Group project in cryptography, building an RSA encrypted text editor

Jean-Pierre Vernant High School, Pins-Justaret (France) **2015 - 2016**

French scientific Baccalaureate, math specialty - with highest honors ("Mention Très Bien") 2016
Scholarship Aptitudes Test (SAT) taken while in 11th grade in the US, score in math: 740/800 (top 3%) 2015

Research Experience

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

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

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…

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

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

For a Morse decoding machine: it allows one to type Morse (received as sound or light signal) through buttons, the decoded text is then displayed on the screen using usual alphabet

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… more on my web page)

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 & get things done well and quickly

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, web apps, to online games, concentrating on front-end
- **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++** (Created a group chat messenger platform to run over internet, also used for hardware electronics)
- **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)
- **Computer-Aided technologies (CAx)** CAD (using *OnShape*) and CAM (doing *3D printing* and *laser cutting)*

Others

French: *Native Speaker* ***English:*** *Fluent* ***Driving License****: 2 years*

Sport: *Rock climbing (13 years)*