

# Alex Greenen

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Creative and pragmatic mathematician specialized in applied mathematics (computation and physics). Master's student at the University of Durham with an excellent academic record, recognized leadership and problem solving skills. Innovative thinker who excels in uncharted environments. Natively bilingual in French and English.

## Education

### Master's in Mathematics University of Durham

Durham, UK | Oct. 2016 - June 2020

First class honors in Year 1, 2 and 3

- Year 4 Modules: TBD
- Year 3 Modules: Quantum Mechanics, Differential Geometry, Mathematical Biology, Quantum Information, Dynamical Systems, Mathematical Teaching
- Year 2 Modules: Numerical Analysis, Algebra, Mathematical Physics, Mathematical Modelling, Complex Analysis, Analysis in Many Variables, Special Relativity and Electromagnetism
- Year 1 Modules: Discrete Mathematics, Analysis, Calculus and Probability, Linear Algebra, Introduction to Programming, Computer Systems

### Baccalauréat S, OIB English Cité Scolaire Internationale de Lyon

Lyon, France | June 2016

Highest Honours (Mention Très Bien)

- Mathematics and Science Track with Computer Science Specialty
- Baccalauréat with International Option (OIB) - British Section

## Research Internships

### Quantum Error Correcting Codes and AdS/CFT correspondence

University of Durham | June-July 2019

Research Supervisor: Prof. G. Etxebarria

Researched how the information recovery mechanism of perfect codes (i.e. HaPPY) could explain bulk AdS information reconstruction in cases of loss of boundary CFT information. Authored paper comparing bulk reconstruction usefulness on various graphical tilings of the hyperbolic plane using various perfect codes.

### Force-Free Magnetic Fields in Curvilinear Tubular Coordinates

University of Durham | June-July 2018

Research Supervisor: Prof. C. Prior

Funded by: Royal Astronomical Society and St Chad's College

Conducted research on analytic form of force-free magnetic field in tubular coordinates, with the aim of studying braided magnetic fields. Manipulated differential geometry with non-diagonal tensor-metrics and simulated the field using python. Produced a paper summarizing my workings and findings.

## Projects

### Graphics Rendering Algorithm

Personal Project | Summer 2019

Developed a graphics rendering program in C++ from scratch supporting ray tracing, texturing, and materials. Support for arbitrary meshed shapes in .obj format.

### DurHack 2018 Team Leader

Durham Hackathon | December 2018

Led and managed a team of four to conceptualise, plan and launch the 'Get Help' Mobile App. Developed using Swift, PHP and MySQL. Includes live messaging and posting system integrated into modern interface.

### 3D Time-Evolving Cloth Simulation

Personal Project | Summer 2017

Built a 3D cloth simulation in Swift, developing my grasp of discretising surfaces into meshes, numerically modelling elasticity and other forces and optimising the code to increase efficiency.

### DurHack 2016 Hackathon Team member

Durham Hackathon | December 2016

Group project developing 'Get Home Safe' web app using Node.js, HTML, JavaScript and MySQL. Allows users to visualise a customised map with overlaid datasets procured from a custom database to chart a safe walking itinerary to their desired location.

## Leadership

### Building steering Group Member

*University of Durham | 2018 - current*

Mediate between student body and University Board concerning the development of the New Mathematics and Computer Science Building Project.

### Mathematics Teaching Assistant (Year 7)

*Durham University - Mathematical Teaching | 2018 - 2019*

As part of my mathematical teaching module, I received first hand experience of being a teacher and taught a Year 7 at Durham Johnston school. I took part in teaching the students, designing problems, conceiving an exam, as well as marking.

### Art Room Manager

*Durham University Art Society | 2018 - 2019*

Managed Finances, Inventory, Stocking and Ordering of materials for Art sessions.

### DurHack 2017 Event Manager

*Durham Hackathon | 2017 - 2018*

24-hour Major League Hacking (MLH)-affiliated hackathon where attendees collaborate on software and hardware projects. Managed a team of five students. Procured and negotiated sponsorship agreements, and arranged venue logistics, catering, advertising, attendee registration, workshops and guest speakers. Signed-up 12 sponsors, raised over £11,000 in sponsorship funding, and attracted 100+ attendees.

### Fine Art Sessions Manager

*Durham University Art Society | 2017 - 2018*

Led and organised weekly art sessions to introduce various different media to students. This involved planning the sessions, purchasing the materials, invoicing, and prospecting for guest artists. I also taught sessions that required me to prepare/make teaching materials, study the medium and develop my presentation and communication skills.

### ILYMUN Event and Logistics Manager

*International Lyon Model United Nations | 2016*

Secured and managed contracts with venue and catering for Model United Nations (MUN) conference involving 400+ attendees from 7 different countries debating political topics over three days.

## Awards and Recognition

### Ian Graham Award

*University of Durham | December 2018*

In recognition of academic achievements and all-round contributions to the life of the university.

### Thorp Scholarship

*University of Durham | December 2018*

In recognition of academic attainment and good moral character.

### Student Academic Representative Award

*Durham Student Union | June 2018*

Voted by second-year students as the best student representative at the University of Durham, as I actively assisted maths students and faculty to resolve issues during protracted faculty strike.

### Hackathon Category Winner

*Durham Hackathon | January 2017*

Won the W@terstons-sponsored project at 24-hour MLH hackathon.

### Academic Merit Award

*Auvergne Rhône-Alpes Region | June 2016*

Awarded to students attaining the highest level of academic achievement in the region.

## Computer Languages

**Java** - *Fluent*

**Python** - *Fluent*

**Swift** - *Fluent*

**MySQL** - *Fluent*

**C++** - *Intermediate*

**R** - *Intermediate*

**PHP** - *Intermediate*

**HTML & CSS** - *Intermediate*

**Assembly code** - *Intermediate*

## Languages

**English**: Native speaking/writing

**French**: Native speaking/writing

**Spanish** : B2 level (per the Common European Framework of Reference)

## Citizenship

**United States of America**

**France**