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
Durham, UK | Oct. 2016 - June 2020

Durham University

First class honors in Year 1 (71%), Year 2 (76%) and Year 3 (80%)

- Year 4 Modules: Advanced Quantum Theory, Solitons, Continuum Mechanics, General Relativity, Project
- 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
Lyon, France | June 2016

Cité Scolaire Internationale de Lyon

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: Dr. I. Garcia 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: Dr. 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 euclidean tensor-metrics in Wolfram Language 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*

C++ - *Fluent*

MySQL - *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