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Liam L.H. Lau

Education

2017–2020 **University of Cambridge, Gonville and Caius College**, *B.A. Physics*.
First Year: First-Class in Maths and Physics. 2.i in Chemistry and Materials.
Second Year: First-class in Physics A, 2.i in Physics B and Maths
Third Year (In Progress): Core modules including General Relativity & Advanced Quantum Physics. Optional modules including Classical Field Theory (TP1) & Quantum Condensed Matter.

2010–2017 **Westcliff High School for Boys**.
A-Levels: 4A*in A level Physics, Maths, Further Maths & Chemistry
GCSEs: 12A*, 1 A. A*'s including: English, Maths, Chinese & Physics
Free-Standing Mathematics Qualification: A (Additional Maths OCR)

Research Experience

Jul–Oct 2019 **Summer Research Student** *KICC, Cambridge, UK*
Dr. Will Handley, University of Cambridge, & Dr. Pablo Lemos, University College London
Astrostatistics & observational Cosmology. Worked on finding the coordinate of maximum tension between Planck and DES data given the LCDM model. Developed software to find a numerical approximation to the coordinate. **Paper in progress for forthcoming publication.**

2018–2019 **Airbus Fly Your Ideas International Competition** *Toulouse, France*
International finalist for Airbus Fly Your Ideas with Team Seren.
Worked on the **modelling and simulation** in C++ and Python of the specific power of the novel system of generating power in space.
Presented in front of a live audience of Airbus employees and judges.

Jul-Aug 2018 **Summer Project Student** *SMF Group, Cavendish, Cambridge*
Dr. John Ellis, University of Cambridge
Simulated electron trajectories in the ioniser of the Scanning Helium Atom Microscope (SHeM) using COMSOL. Tested peltier modules in vacuum and coded the sample cooling and sample heating programs in MATLAB.

Conferences and Workshops

Sep 2019 **KICC 10th Anniversary Symposium** , *KICC, Cambridge, UK*.
Attended seminars and talks given by academics including Lord Martin Rees, Prof. David Spergel, Prof. Jo Dunkley & Prof. Roger Blandford.

Aug 2019 **AstroHack Week 2019**, *KICC, Cambridge, UK*.
Participated in workshops for **Bayesian Statistics** & **Data Visualisation**

Awards and Grants

Jun. 2019 International Team Finalist — *Airbus Fly Your Ideas Competition*
Summer 2019 Undergraduate Summer Research Bursary — *Gonville & Caius College*

	Summer Research Grant	*Kavli Institute for Cosmology, Cambridge*
Summer 2018	Tutor Donation Fund for Summer Research	*Gonville & Caius College*
Nov. 2016	Silver Medal in the British Physics Olympiad	
Jun. 2016	University of Cambridge Senior Physics Challenge	
May 2016	Gold Award in the Cambridge Chemistry Challenge	
Spring 2014	10th Nationally in the FMSQ Year 10 Maths Challenge	

Computational Skills

Programming	Python, MATLAB	*2 Years*
	C/C++	*1 Year*
Computing	Linux, Unix, Bash, LaTeX, vim, git	*2 Years*
Web	HTML, CSS, MySQL, PHP	*6 Months*
OS	Arch Linux, Windows & OSX	*Experienced*

Languages

English	Fluent
Cantonese	Limited Working Proficiency
Mandarin	Basic

Extracurricular

2020–Present **PLANCKS 2020 Theoretical Physics Competition**.
In one of the **top three teams representing the UK** in the upcoming 2020 PLANCKS theoretical physics competition for bachelor and masters students. My team, including two other Cambridge students, beat 29 other teams, from 28 different universities across N. Ireland, Scotland, Wales and England, in the 4 hour exam for the UK preliminaries. Question topics included: gravitational wave detection; Cern-Simons electrodynamics (in 3+1 spacetime) and quantum information in the study of interactions of an electron's spin with a reservoir of many other spins. **Exam can be found on my website**.

2019–2020 **Co-Chair of the Cambridge University Physics Society**.
Organised academic talks and social events for undergraduate physics students. I organised and introduced speakers including *Professor John Cardy*- notable for his work on CFT; 2019 Nobel Prize Laureate, *Professor Didier Queloz*; and *Professor Johannes Knolle* on Quantum Spin Liquids.

2017–2019 **Captain of the Gonville and Caius College Basketball Team**.

2018–Present **Coded personal reśumé website**.

2018–Present **Hackathons**.
AI Hack: 3rd Place **GWAS** Project on using logistic regression with single-nucleotide polymorphism data todetermine significant SNPs associated with coronary artery disease.
Oxford Hack: Started a project on a dynamic student calendar.

2014–2016 **Duke of Edinburgh Award: Bronze & Silver**.
Volunteering experience including interacting with disabled individuals at Essex's Disability Inclusion Society. This involved collaborative projects such as planting a visual garden for Basildon Hospital.

2008–Present **Piano- Especially enjoy playing pieces from the Romantic Period**.

References

Dr. Will Handley	*+44 (0) 1223 767893, wh260@cam.ac.uk*
Dr. John Ellis	*+44 (0)1223 337410, je102@cam.ac.uk*
Prof. Raphael Blumenfeld	*rbb11@cam.ac.uk*