



Graham Van Goffrier

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grahamvangoffrier.com

A passionate PhD student physicist with broad experience across particle theory, nonlinear optimisation, mathematics, and computation. Contributed to research efforts in collaborations on interdepartmental and international scales. A dedicated leader focused on energizing professional development and community outreach.

Skills:

- ◆ Applied Mathematics
- ◆ Physical Intuition and Reasoning
- ◆ Data Analysis and Interpretation
- ◆ Scientific Computing
- ◆ Team Leadership and Project Management
- ◆ Scientific Communication, Written and Spoken
- ◆ Global Collaboration
- ◆ Electronics Design and Testing
- ◆ Language Acquisition
- ◆ Independent Learning
- ◆ Teaching and Tutoring

Research and Work Experience:

2019-2020: University of Cambridge, Department of Engineering: Research focusing on matrix manifold geometry and nonlinear optimisation, with Cyrus Mostajeran and Prof. Rodolphe Sepulchre.

2017: CERN, ATLAS-ttH Summer Student: Research project on the use of FOAMs (iteratively discretized probability distributions) for Monte-Carlo event generation, with Prof. Tancredi Carli and Alexander Held, supported by UM-CERN-REU and NSF.

2016-18: University of Maine, Department of Physics: Student research investigating visualisation of relativistic open- and closed-string solutions, including study of string cusps and kinks, with Prof. Neil Comins.

2016: University of Maine, Departments of Computer Science and Physics: Summer research projects on context-based reasoning systems, with Prof. Roy Turner, and on simulation of confocal optics for FPALM super-resolution microscopy, with Prof. Sam Hess.

2015: University of Maine, Laboratory for Surface Science and Technology: Research assistant employing MATLAB to model the frequency responses of Surface Acoustic Wave (SAW) devices, with Prof. Mauricio da Cunha.

2014-18: University of Maine, Departments of Physics and Elec/Comp Engineering: Teaching assistant for six semesters of courses ranging across theory, application, computation, and technical writing. Hosting workshops, administering lab sections, conducting mock interviews, grading lab reports, guiding students during and outside of class, and exam preparation.

2014: Gordon Insurance, Social Media and Web Engineer: Managed social media, blog, and email promotion, and supported other marketing efforts.

2013-14: Target Marketing, Office Assistant: Supported database and resource research for pre-university website offering STEM career information.

Education:

University College London, studying for PhD Data-Intensive Science / Particle Physics

University of Cambridge, MAST Applied Mathematics, 2019

University of Maine, Orono, M.S. Electrical Engineering (GPA 4.00/4.00), 2018

University of Maine, Orono, B.S. Physics (GPA 4.00/4.00), 2018

- ◆ Class of 2018 Valedictorian, *summa cum laude*, Phi Beta Kappa
- ◆ Minors: Mathematics, Electrical Engineering, Nanotechnology

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Achievements:

- ◆ Applied FOAM (cellular model of probability distribution) to ttbar process phase-space with varied complexity of decay chains, including novel visualization/debugging tools, while summer student at CERN.
- ◆ Studied examples of correspondence between bosonic string worldsheets and complex Euclidean minimal surfaces, and implemented visualization tool for examining open- and closed-string worldsheets with arbitrary mode expansions.
- ◆ Taught lab section of 24 students for introductory electromagnetics, including in-class instruction, report evaluation, and assisting students with large-scale projects.
- ◆ Surface-acoustic wave (SAW) devices of arbitrary geometries, providing foundation for sensor research.

Awards:

- ◆ NSF Graduate Research Fellow, 2019 (declined due to overseas student status)
- ◆ Valedictorian, University of Maine, 2018
- ◆ Goldwater Scholar, 2017
- ◆ UMaine Dean's List and President's Scholarship, all semesters
- ◆ UMaine Departmental Scholarships (Physics, Engineering, and Alumni) 2014-18
- ◆ Putnam Mathematical Competition, UMaine High Scorer, 2015-16
- ◆ National Merit Scholarship Recipient, 2014

Leadership Positions and Community Service:

- ◆ University College London, PGR Student Representative to the Faculty of Mathematics and Physical Sciences, and elected to UCL Research Degrees Committee (2019-20)
- ◆ University of Cambridge, Graduate Student Representative to the Council of the School of Physical Sciences (2019)
- ◆ SPS and TBP, Maine Day Campus Clean-up Activities (2015-18)
- ◆ SPS, UMaine Chapter (2014-18), served as President
- ◆ IEEE, UMaine Student Branch (2014-18), served as President
- ◆ UMaine Engineering Job Fair/Engineering Expo Volunteer (2014-18)
- ◆ IEEE-HKN UMaine Chapter (2016-18), served as Vice President
- ◆ Tau Beta Pi Maine Alpha Chapter (2016-18), served as President
- ◆ UMaine Middle School Engineering and Physics Events Volunteer (2015-16)
- ◆ UMaine Complex Leadership Council (2014-16)
- ◆ UMaine Physics Elementary Education Camp Volunteer (2014)

Affiliations:

- ◆ AMS (American Mathematical Society)
- ◆ ANS (American Nuclear Society)
- ◆ APS (American Physical Society)
- ◆ EPS (European Physical Society)
- ◆ Golden Key International Honour Society
- ◆ IEEE Eta Kappa Nu Honour Society
- ◆ IOP (Institute of Physics)
- ◆ LMS (London Mathematical Society)
- ◆ PBK (Phi Beta Kappa)
- ◆ PKP (Phi Kappa Phi)
- ◆ Sigma Pi Sigma Physics Honour Society
- ◆ Sigma Xi, The Scientific Research Honour Society
- ◆ TBP (Tau Beta Pi, Pan-Engineering Honour Society)
- ◆ The Nuclear Institute

References:

- ◆ Dr. Cyrus Mostajeran, Junior Research Fellow, Control Group, University of Cambridge (csm54@eng.cam.ac.uk)
- ◆ Professor Tancredi Carli, Senior Research Physicist, ATLAS Experiment, CERN (tancredi.carli@cern.ch)
- ◆ Professor Neil Comins, Professor of Physics and Astronomy, University of Maine (galaxy@maine.edu)
- ◆ Professor Donald Hummels, Chair of Electrical/Computer Engineering, University of Maine (hummels@umit.maine.edu)

