Rohan Hitchcock

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Highly motivated graduate mathematics student at the University of Melbourne. Has a strong interest and research experience in homological algebra, category theory and algebraic geometry. Has experience teaching as a computer science and mathematics tutor at the University of Melbourne, and has further developed teaching and mentorship skills by initiating the development of a seminar series for first-year mathematics students, and volunteering mentoring high-school student.

Education

Master of Science (Mathematics and Statistics) Jul. 2020 – Nov. 2022
The University of Melbourne

- Completing thesis in pure mathematics under the supervision of Dr Daniel Murfet.
- Specialising in pure mathematics, with additional study in probability, statistics and discrete mathematics.

Bachelor of Science (Mathematics and Statistics) Feb. 2017 – Jul. 2020
The University of Melbourne

- Specialised in pure mathematics, with additional study in discrete mathematics and probability at a third-year level.

Diploma in Computing Feb. 2017 – Jul. 2020
The University of Melbourne

- Completed study in artificial intelligence, machine learning and theoretical computer science at a third-year level.

Teaching Experience

Tutor (Computer Science, Mathematics) Jul. 2020 – Present
The University of Melbourne

- Taught tutorials for subjects on artificial intelligence, theoretical computer science, introductory calculus and introductory linear algebra.
- Produced learning resources for the third-year computer science subject Models of Computation. This included designing and implementing an interactive module in the online coding platform Grok Learning, and scripting, delivering and editing videos to supplement the existing subject resources.

Volunteer Mentor Sep. 2021 – Present
The Institute for Enquiring Minds

- One-on-one mathematics mentoring with a high-school student as part of a charity which connects mentors with students from disadvantaged backgrounds.

Volunteer Seminar Organiser (Mathematics) Feb. 2020 – Jul. 2021
The University of Melbourne

- Ran a seminar program for undergraduate mathematics students which has included three semester-long seminar series' on cryptography, game theory, and neural networks.
- Designed the curriculum for seminars, mentored students as they prepared for their talks, and was responsible for general administration tasks.

Demonstrator (Computer Science) Feb. 2018 – Jun. 2018
The University of Melbourne

- Taught practical classes which introduced students to programming in Python.

Research Experience

Research Assistant Jul. 2018 – Aug. 2020
The Peter Doherty Institute, The University of Melbourne

- Worked on a research project which aimed to determine a stochastic model for immune cell motion in the liver from microscope imaging data.
- Used Python and scientific libraries such as NumPy and SciPy to fit imaged blood vessels with a connected network of curves, and analysed cell motion through these vessels.
- Wrote high-performance simulations of cell motion using C with OpenMP.
- Contributed to a paper by providing supporting simulation data, and rewriting legacy image processing code.

AMSI Vacation Research Scholarship Dec. 2019 – Jan. 2020
The University of Western Australia
Australian Mathematical Sciences Institute

- Completed 6 week research project under the supervision of Dr John Bamberg and Prof. Michael Giudici, resulting in a report and presentation at the AMSI Connect conference.
- Reviewed a construction of the groups of type E_6 as a subgroup of the automorphisms of a particular vector space, and compared this to the historical construction.

Publications

Original Refereed Publications

- Yu Kato et al., "Display of Native Antigen on cDC1 That Have Spatial Access to Both T and B Cells Underlies Efficient Humoral Vaccination", *The Journal of Immunology*, vol. 205, no. 7, Art. no. 7, Oct. 2020, doi: 10.4049/jimmunol.2000549.
  - Wrote simulations of biological processes to support experimental data. Adapted legacy image processing code.

Other Publications

- Rohan Hitchcock, John Bamberg and Michael Giudici, "Alternative construction of the groups of type E_6", *AMSI Vacation Research Scholarship and AMSI Connect Conference*, 2020.
  - Performed research, wrote report and presented project at AMSI Connect conference.

Other Experience

Assistant Customer Experience Manager, Shift Supervisor 2016
McDonald's Australia

- Implemented training program to train existing staff in a new customer service role.
- Responded to customers who had lodged complaints with store.
- Managed shifts, which included planning staff roles, setting individual targets for staff in order to meet shift-level KPIs, and cash-handling and food safety procedures.