Dominic Keehan

Education

Doctoral Candidate in Operations Research 2022–Present
University of Auckland, supervised by Professor Andy Philpott

Bachelor of Engineering (with first class Honours) in Engineering Science 2018–2021
University of Auckland

Experience

Research Assistant November 2021–February 2022
Department of Physics, University of Auckland, supervised by Doctor Nicholas Rattenbury
I developed a Bayesian algorithm for evaluating the posterior of gravitational microlensing events that utilised machine-learned approximations to significantly reduce computing time.

Summer Research Scholar November 2020–February 2021
Department of Mathematics, University of Auckland, supervised by Professor Arkadii Slinko
I studied the strategic behaviour of firms under probabilistic consumer patronage and proved that the structure of the resulting Nash equilibria depends on consumer preferences.

Civil Engineering Intern November 2018–February 2020
Bloxam, Burnett & Olliver Consultants, Hamilton
I designed storm-water infrastructure and met with clients.

Honours

Operations Research Society of New Zealand Young Practitioner's Prize November 2022
University of Auckland Doctoral Scholarship ($33000 annual stipend and fees) March 2022
Senior Scholar Award (highest GPA in undergraduate cohort) November 2021
University of Auckland Summer Research Scholarship ($6000 stipend) September 2020

Publications

Dominic Keehan, Andy Philpott, and Edward Anderson (May 2023). "Sample average approximation and model predictive control for inventory optimization". preprint. URL: `https://optimization-online.org/?p=23090`

Dominic Keehan, Jack Yarndley, and Nicholas Rattenbury (Oct. 2022). "Microlensing model inference with normalising flows and reversible jump MCMC". in: *Astronomy and Computing* 41, p. 100657. DOI: `https://doi.org/10.1016/j.ascom.2022.100657`

Dominic Keehan, Dodge Cahan, John McCabe-Dansted, and Arkadii Slinko (Sept. 2022). "Equilibria on a circular market when consumers do not always buy from the closest firm". In: *Review of Economic Design* 26, pp. 285–306. DOI: `https://doi.org/10.1007/s10058-022-00290-x`

Conference Presentations

Model predictive control and stochastic dynamic programming (July 2023). XVI International Conference on Stochastic Programming, Davis, California

Model predictive control and distributionally robust stochastic dynamic programming (Nov. 2022). 54th Annual Conference of the Operations Research Society of New Zealand

Research Visit

University of Sydney Business School December 5–13th, 2022
Supervised by Professor Edward Anderson

Teaching

Graduate Teaching Assistant 2022–Present
Department of Engineering Science, University of Auckland
I run laboratories for the course: Simulation Modelling for Process Design (ENGSCI 355). This involves assisting around seventy students with the modelling, simulation, and statistical analysis of complex queuing systems using Java and R.

Extracurricular

President 2023–Present
University of Auckland Futsal Club
In my tenure I formally incorporated the thirty member club for the first time and created a development team which plays in a local futsal league. Since 2018 and prior to my role as president, I have helped organise a weekly social futsal session where students come for a friendly kick-around.

Postgraduate Student Representative 2023–Present
Engineering Science Department, University of Auckland
I liaise between the Engineering Science postgraduate community and the department staff.

Consultant August 2020–November 2020
ThinkPod
I did pro-bono consulting for Motor Neurone Disease New Zealand in a team focused on supporting rural New Zealanders. We developed strategies to reach people with the disease remotely.

Peer Mentor March 2020–November 2020
Biomedical and Engineering Science Student Association, University of Auckland
I mentored second-year engineering students; discussing courses, careers, and life.

Programming

Languages: Julia (preferred), Python, R, Matlab
Portfolio: `https://github.com/dstkeehan`

References available upon request.