Dominic Keehan

Twenty-three-year-old New Zealand citizen

Education

University of Auckland

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

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

Engineering Scientists use mathematics and computation to understand and make better decisions.

Experience

Department of Physics, University of Auckland November 2021–February 2022

Research Assistant, supervised by Doctor Nicholas Rattenbury

I developed a Bayesian algorithm for sampling the posterior of gravitational microlensing events that utilised machine-learned approximations of the solution to significantly speed up convergence.

Department of Mathematics, University of Auckland November 2020–February 2021

Summer Research Student, supervised by Professor Arkadii Slinko

I investigated the strategic behaviour of firms under different probabilistic rules for consumer patronage and classified those that led to Nash equilibria featuring multiple distinct firm clusters.

Bloxam, Burnett & Olliver Consultants, Hamilton November 2018–February 2020

Civil Engineering Intern

I designed storm-water infrastructure and communicated validated solutions with clients.

Awards

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 programme) November 2021

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". In: *Preprint*

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, et al. (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

Talk

54th Annual Conference of the Operations Research Society of New Zealand November 2022
Model Predictive Control and Distributionally Robust Stochastic Dynamic Programming

Research Visit

University of Sydney Business School December 5–13th, 2022
Supervisor/Collaborator: Professor Eddie Anderson

Teaching

Marking and invigilating
Mathematical Modelling (ENGSCI 211, 311), Algorithms for Optimisation (ENGSCI 760), Advanced Simulation and Stochastic Optimisation (ENGSCI 763), Advanced Operations Research and Analytics (ENGSCI 768).

Tutoring and running laboratories
Simulation Modelling for Process Design (ENGSCI 355).

Volunteering

Engineering Science Postgraduate Student Representative March 2023–Present
I raise issues faced by the Engineering Science postgraduate community with the Staff-Student Consultative Committee.

University of Auckland Futsal Club May 2022–Present
I organise a weekly futsal session where students come for a friendly kickaround.

ThinkPod Consulting August 2020–November 2020
I worked with Motor Neurone Disease New Zealand in a team focused on reaching rural New Zealanders. We developed strategies to connect and support people remotely.

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

Programming Languages

Julia, python, **R**, MATLAB, LaTeX `https://github.com/dominickeehan`

References available upon request.