

Regan Baucke

CERMICS Laboratory
Level 3, Bâtiment Coriolis
École des Ponts ParisTech
Champs-sur-Marne, 77455, France
email: regan.baucke@enpc.fr

Born: July 17, 1992—Auckland, New Zealand
Nationality: New Zealand
Language: English

Current position

Post-doctoral researcher, CERMICS, Ecole des Ponts ParisTech.

Areas of specialisation

My expertise lie in the field of mathematical programming, optimisation, and operations research. These three fields aim to combine mathematics, computers, and data into problem-solving frameworks for real-world application.

In particular, my post-doctoral research focuses on attaining computable, sure, bounds in stochastic programming and analysing the convergence of such bounds. This research has application in many problems faced within industry, and has a large overlap with many machine-learning frameworks.

Education

2018	PhD in Operations Research, University of Auckland
2014	BE (HONS) in Engineering Science (First class honours), University of Auckland

Awards

2018	DIM Math Innov Post-doctoral Laureate – <i>an award which brings together industry and the top mathematics laboratories across France.</i>
2015	University of Auckland Doctoral Scholarship, University of Auckland – <i>an award recognising the high academic achievement of the awardees.</i>
2015	Energy Education Trust of New Zealand Doctoral Scholarship, EETNZ – <i>an award to PhD students who demonstrate academic merit and an interest in the New Zealand energy sector.</i>

Publications & talks

JOURNAL ARTICLES

- 2018a Baucke, Downward, Zakeri. [A deterministic algorithm for solving stochastic minimax dynamic programmes](#), *Optimization Online*. Under review with the *European Journal of Operational Research*.
- 2018b Downward, Dowson, Baucke. [On the convergence of a cutting plane method for multistage stochastic programming problems with stagewise dependent price uncertainty](#), Under review with *Operations Research Letters*.
- 2018c Baucke. [An algorithm for solving infinite horizon Markov dynamic programmes](#), *Optimization Online*. Under review with *Operations Research Letters*.

SELECTED TALKS

- 2018 Minimax dynamic programmes, *International Symposium on Mathematical Programming, Bordeaux*
- 2017 A deterministic algorithm for solving multistage stochastic programming problems, *INFORMS General Meeting, DOS Seminar at ISYE Georgia Tech, Industrial Engineering and Management Sciences Talk at Northwestern*.
- 2016 Multistage risk aversion applied to the electricity sector, *INFORMS International Meeting*

Teaching

- 2019 English-speaking Lecturer/Liason - "Introduction to Mathematical Optimisation."
- 2015-16 Teaching Assistant - "Engineering Computation and Software Development"
- 2015-16 Teaching Assistant - "Optimisation in Operations Research"

Software development

My preferred programming language for developing numerical experiments and production level software is *Julia*. I also have experience with other high-level languages such as, Python, Matlab, and R. Low-level languages include a mid-level knowledge of C.

- 2018 JuDGE – Julia Decomposition for Generation Expansion, a software package for solving large-scale stochastic integer optimisation problems. This software package has found usage within the Electrical Power Optimisation Centre at the University of Auckland, as well as Comillas Pontifical University in Spain. <https://github.com/reganbaucke/JuDGE.jl/>

Groups & organisations

- 2014-18 Operations Research Society of New Zealand Student Member
- 2015 Graduate Researcher within the Energy Centre at The University of Auckland
- 2015-18 Graduate Student Researcher at The Electrical Power Optimisation Center (EPOC): a research group within the Department of Engineering Science.
- 2016-18 INFORMS Student Member.

References

Assoc Prof. Golbon Zakeri, *PhD Supervisor*. Contact email: g.zakeri@auckland.ac.nz
Dr. Anthony Downward, *PhD Supervisor*. Contact email: a.downward@auckland.ac.nz
Prof. Andy Philpott, *EPOC Co-director*. Contact email: a.philpott@auckland.ac.nz
Dr. Vincent Leclere, *Post-doctoral Supervisor*. Contact email: vincent.leclere@enpc.fr
Prof. Tito Homem-de-Mello, *Thesis referee*. Contact email: tito.hmello@uai.cl