Alex de Beer

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Education

ME, Engineering Science *2023–24*
The University of Auckland

BE (Hons), Engineering Science (First Class Honours, Honours GPA 9.00 / 9.00) *2019–22*
The University of Auckland

Research Experience

Research Assistant *Nov 2021–Feb 2023*
University of Auckland Geothermal Modelling Group

- Evaluated the effects of using geologically consistent prior parameter distributions on the uncertainty quantification of geothermal reservoir models.
- Developed software implementations of algorithms, based on Bayesian statistics, for simulation-based inference of geothermal reservoir model parameters.

Additional Experience

Teaching Assistant *Feb 2021–Present*
The University of Auckland

- Providing assistance to students during tutorials and marking coursework for several maths and engineering courses.

Analytics and Insights Intern *Nov 2022–Feb 2023*
Ministry of Business, Innovation and Employment

- Developed a prototype dashboard to communicate the relationships between research funding and outputs in New Zealand.

Data Science Intern *Nov 2020–Feb 2021*
Xtracta

- Developed machine learning models for product recommendation, document classification and document de-noising.

Selected Honours & Awards

Senior Scholar Award (2022) *The University of Auckland*
Achieved a perfect honours GPA.

First in Course Awards (2020–22) *The University of Auckland*
Awarded first in 16 / 32 undergraduate courses.

Best Poster Award (2022) *The University of Auckland*
Awarded first equal in the Engineering Summer Research Scholarship poster competition.

Skills

Programming Python, R, Julia, MATLAB, SQL, C++, C.
Tools Jupyter Notebook, LaTeX, Git, Excel, PowerBI.

Talks

[1] Ensemble Methods for Large-Scale Nonlinear Optimal Experimental Design
SIAM Conference on Uncertainty Quantification, Trieste, Italy (2024) [slides]

[2] Ensemble Methods for Geothermal Model Calibration
45th New Zealand Geothermal Workshop, Auckland, NZ (2023) [slides]

[3] Geologically Consistent Priors for Geothermal Reservoir Modelling
48th Workshop on Geothermal Reservoir Engineering, Stanford, CA (2023) [slides]

[4] Using JuDGE for Distribution Network Planning
20th EPOC Winter Workshop, Auckland, NZ (2022) [slides]

Theses

ME: Ensemble Methods for Geothermal Inverse Problems

BE: Expansion of Electricity Distribution Networks Under Uncertainty [report]