

# Alex de Beer

[adeb970@aucklanduni.ac.nz](mailto:adeb970@aucklanduni.ac.nz) · [linkedin.com/in/alexgdebeer](https://www.linkedin.com/in/alexgdebeer)  
[github.com/alexgdebeer](https://github.com/alexgdebeer) · [alexgdebeer.github.io](https://alexgdebeer.github.io)

## Education

### The University of Auckland

*ME, Engineering Science* (Grade: A+) *2023–24*

- Thesis topic: Ensemble methods for geothermal inverse problems.

*BE (Hons), Engineering Science* (Honours GPA: 9.00 / 9.00) *2019–22*

- Honours project: Expansion of electricity distribution networks under uncertainty.
- Relevant coursework: inverse problems, Bayesian inference, probability theory, stochastic optimisation, machine learning, continuum mechanics.

## Research Experience

### Auckland Bioengineering Institute

*Research Assistant* *Mar 2024–Present*

- Developing software to perform uncertainty quantification for physiological models.

### University of Auckland Geothermal Institute

*Research Assistant* *Nov 2021–Present*

- Developing software and contributing new methods to uncertainty quantification projects for several geothermal reservoir models.
- Presented research to diverse audiences at international conferences.
- Taught graduate students how to use software tools for reservoir modelling.

## Additional Experience

### The University of Auckland

*Teaching Assistant* *Feb 2021–Present*

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

### Ministry of Business, Innovation and Employment

*Analytics and Insights Intern* *Nov 2022–Feb 2023*

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

### Xtracta

*Data Science Intern* *Nov 2020–Feb 2021*

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

## Selected Honours & Awards

**Senior Scholar Award** (2022)

Achieved a perfect honours GPA.

*The University of Auckland*

**First in Course Awards (2020–22)**

Awarded first in 16 / 32 undergraduate courses.

*The University of Auckland*

**Best Poster Award (2022)**

Awarded first equal in the Engineering Summer Research Scholarship **poster competition**.

*The University of Auckland*

## Skills

**Programming** Python, R, Julia, MATLAB, SQL, C++, C.  
**Tools** Jupyter Notebook,  $\text{\LaTeX}$ , Git, Excel, PowerBI.

## Working Papers

**Ensemble Kalman Inversion for Geothermal Reservoir Modelling**

*A de Beer, M Gravatt, R Nicholson, MJ O'Sullivan, JP O'Sullivan, OJ Maclaren.*

## Talks

**Ensemble Methods for Large-Scale Nonlinear Optimal Experimental Design**

SIAM Conference on Uncertainty Quantification, Trieste, Italy (2024)

**Ensemble Methods for Geothermal Model Calibration**

45<sup>th</sup> New Zealand Geothermal Workshop, Auckland, NZ (2023)

**Geologically Consistent Priors for Geothermal Reservoir Modelling**

48<sup>th</sup> Workshop on Geothermal Reservoir Engineering, Stanford, CA (2023)

**Using JuDGE for Distribution Network Planning**

20<sup>th</sup> EPOC Winter Workshop, Auckland, NZ (2022)

## Theses

**Ensemble Methods for Geothermal Inverse Problems**

Master's Thesis (2024)

**Expansion of Electricity Distribution Networks Under Uncertainty**

Honours Report (2022)