Robert Hoelzle, PhD

Data Scientist

Data scientist and bioinformatician with 11 years' experience in high paced R&D environment, 6 years' experience in bioinformatics programming, and a life-long passion for problem solving. Proficient in Python, R, and Bash with many multivariate modelling and statistics techniques.

Experience

Bioinformatics Research Fellow

2016 – Present The University of Queensland
Brisbane, Qld, AUS

- Published 4 peer-reviewed publications (+3 in review), including design of data analysis pipelines in Shell, R, and Python which integrate complex genomic, transcriptomic, and environmental datasets
- Slashed research group's processing time for genomic data by 60% through custom built Python bioinformatic programs for DNA data extraction
- Initiated and maintained consultancies with biotech industry stakeholders for microbiology solutions to soil carbon sequestration, copper bioleaching, and wastewater treatment projects
- Supervised eight research students, and mentored four research professionals, providing guidance for coding and data analysis in Shell, R, and Python

Bioprocess Engineering PhD Student

2012 – 2017 The University of Queensland
Brisbane, Qld, AUS

- Published 3 peer-reviewed articles and 1 thesis, including design of data analysis pipelines in Shell and R which integrate complex genomic, proteomic, and environmental datasets
- Discovered and published novel bioplastic production method using custom bioreactors with self-designed environmental control systems in C++

Bioprocess Engineer

2010 – 2012 Green Biologics Ltd
Columbus, Ohio, USA

- Programmed environmental control systems in C++ for pilot and demonstration scale biofuel reactors, resulting in a commercially operating biofuel plant
- Coordinated governmental lab certification by US National Renewable Energy Laboratory for pilot reactor research facility
- Supervised two research assistants for pilot and demonstration scale reactor development

Skills

Languages

Python (SKLearn, SciPy, Pandas, NumPy, Dash, IBM_DB, FuzzyWuzzy)

R (Vegan, NbClust, RCy3, RStatix, mvabund, lsmeans, spaa, dplyr, tidyr, SpiecEasi)

Shell, T-SQL, SQLite, and C++

Modelling and Statistics

Predictive modelling, generalized linear models, single/multiple linear and polynomial regression, advanced multivariate statistics, multivariate ordination, feature clustering, network analysis

Cloud Infrastructure

IBM Watson Studio, IBM DB2, Galaxy Australia

Tools

GitHub, Jupyter Notebook, R Studio

General

Creative problem solving, technical writing and communication, consulting, project management, budget management, team coordination

Education and Certificates

- **PhD** (*2017*) – The University of Queensland
  Chemical Engineering
- **BSc** w/ Honors (*2010*) – The Ohio State University
  Chemical and Biomolecular Engineering
- **Professional Cert** (*2022*) – IBM
  Data Science

Community Engagement

- Joint Academic Microbiology Seminars (*2018 – Pr*)
- March for Science – Brisbane (*2017*)
- Engineers without Borders – UQ (*2015 – 2016*)

Interests

Rock Climbing	Home Brewing
Ultimate Frisbee	Escape Rooms
Photography	Gardening