DENNIS LIU

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To enact positive change and understand the greater world community

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EDUCATION

University of Adelaide

Ph.D candidate: Mathematics (Statistics) `2017 to present`

Data to Decisions CRC Big Data Scholarship

My research focuses on building frameworks to model social behaviours and infectious diseases using digital, non-traditional datasets. I am interested in analysing human behaviours and analysing their effects on models and forecasts of public health measures. I have recently been working with a wider group of researchers to provide forecasts of COVID-19 cases to the Australian Government and Department of Health. I am proficient in Python and standard quantitative packages (numpy, pandas, sklearn etc.), and have some familiarity with R and Matlab. Key skills involved are:

- Bayesian inference and statistical learning,
- Develop novel models and construct appropriate learning algorithms to infer parameters,
- Understanding, learning and applying solutions to complex problems,
- Apply object-orientated programming to improve interpretability of code. See my tutorials.

Publications & Conferences

How to flatten the curve of coronavirus, a mathematician explains. *The Conversation*	2020
Elucidating user behaviours in a digital health surveillance system to correct prevalence estimates.	`Acceptance pending`
Predicting influenza testing associated with family doctors by using a web-based surveillance system.	`Acceptance pending`
Complex Human Data Summer School	2018
Policy Relevant Infectious Disease Simulation and Mathematical Modelling	2018

B. Ma. Comp. Sci (Applied) `2011 to 2015`

- Overloaded course work 2011 to 2012, studied part time while working full time 2014 to 2015

B. Eng. (Chemical) with First Class Honours `2009 to 2013` *Dean's Merit Certificate for Outstanding Academic Achievement* `2009 to 2012`

EMPLOYMENT EXPERIENCE

Santos Ltd.

Unit Controller Engineer `2015 to 2017`

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My previous employment required me to work in a remote location in a gas plant control room, where gas production from over 600 wells and multiple facilities is fed to the plant through compressors controlled by myself, to be processed all hours of the day.

- Communicate issues with other stakeholders clearly and concisely
- Important commercial and safety decisions are regularly made independently, often employing critical problem solving skills to arrive to a solution

Graduate Facilities Engineer   2014 to 2015

As a facilities engineer, I was responsible for various facility assets producing oil and gas, optimising production. Projects were delivered in a timely and economic manner, with deliverables and risks communicated clearly to key stakeholders for approval.

- Optimisation of gas engines and compressors
- Project management
- Risk assessment

Globe Education Centre

Mathematics and Science Tutor   2009 to 2014

- Tutored students from the ages of 5 to 18 years of age in mathematics and science
- Supervised individuals and large classes

KEY STRENGTHS

- Clear communication skills in time constrained environments
- Programming experience in Excel VBA, Matlab and Python
- Project management
- Experienced in working collaboratively and critical decision making

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REFEREES

Lewis Mitchell

Organisation:	The University of Adelaide
Position:	Senior Lecturer
Email:	lewis.mitchell@adelaide.edu.au

Glenn Lydyard

Organisation:	Santos Ltd.
Position:	Team Leader Advanced Analytics & Production Technologies
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Sungkook Kwon

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Position:	Director
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