

# ADAM GREEN

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## SUMMARY

An energy engineer turned data scientist. My work is focused on using data to contribute to the fight against climate change.

My experience is a blend of energy engineering, data science and machine learning, with a focus on optimization & control of energy systems and time series forecasting. I have experience working in the UK & Australian energy markets, and understand the intersection of the technical and commercial side of energy systems.

My expertise as a data scientist is focused on using machine learning with tabular data, time series and reinforcement learning. I have a solid command of both classical machine learning and deep learning. I enjoy all stages of the data science process, including data collection, data cleaning & building front ends.

I have experience working at large corporations and small mission-driven startups, both in-person and remote. I have management experience running a data science bootcamp, where I taught & mentored professionals transitioning into data science. I continue to mentor professionals in data science on a one-to-one basis.

## EDUCATION

**The University of Manchester** · 2011 - 2012  
MSc Advanced Process Design for Energy

**University of Canterbury** · 2006 - 2010  
B.Eng Chemical & Process Engineering (Hons)

## EMPLOYMENT

**Elia Group**, *Reinforcement Learning Consultant*, Remote, Oct. 2020 - Current  
Freelance consulting on applying reinforcement learning to European energy trading.

**Data Science Retreat**, *Director*, Berlin, 2019 - 2020  
Management at one of Europe's longest-running data science bootcamps.

Responsibilities included:

- Creating technical materials & teaching on topics including bash, deep learning, tree-based ensembles and distributed computing - [all course materials are here](#).
- Hands-on technical mentoring of student projects, ranging from tabular data, computer vision, NLP to reinforcement learning.
- Interviewing and selection of students. Supporting their technical & professional development during the program.
- Hiring of teachers, supporting & reviewing their teaching materials and development as data scientists.
- Ensuring smooth day to day operation of the school.

Achievements included:

- Leading the school to be named in SwitchUp's Best Data Science Bootcamps in 2020 - an honour the school had not received in the previous five years.
- Led a website redesign & optimization of internal business processes.
- Hiring twelve teachers to the school.
- Identified & stopped low-value marketing spend, saving the company €5k/month.
- Led a 25% price increase to align with the bootcamp's position as the market leader.
- Building community with early-stage companies & corporates in Berlin, including SAP, FlixBus and Deloitte.

**Tempus Energy**, *Energy Data Scientist*, London & Remote, 2017 - 2019

- Worked on unlocking flexible electricity demand in Australia in an early-stage company. Part of a technical team of data scientists and software engineers. Work included:
- Developed a [mixed-integer linear programming optimization model](#) to optimize the dispatch of battery storage and to measure the accuracy of our price forecasting. Model was put into production in a Docker container.
  - Built reinforcement learning models to control electric battery storage and flexible chiller demand.
  - Worked on gradient boosting & deep learning time series forecasting of NEM electricity prices.
  - Built data pipelines to process and clean Australian electricity grid data and customer chiller data on AWS EC2 & Elastic Search.
  - Developed a technical & commercial solutions of how to estimate the value of flexible load shifting actions.

**ENGIE**, *Energy Engineer*, London, 2012 - 2016

- Initially employed as an Assistant Energy Engineer, promoted to Engineer in April 2014. Work included:
- Development of technical models for large scale energy tenders, with a focus on Combined Heat & Power.
  - Development of energy sale economic models for energy generation.
  - Development of discounted cash flow financial models for large scale energy projects.
  - Development and application of Mixed Integer Linear Programming models for optimization of Cofely's UK largest and most important energy generation assets. Included a 20 MWe CCGT utility system and the 90 MWth district heating scheme at the Olympic Park.

## PROJECTS

[climate-news-db](#) · 2020 - Current

Curating a dataset of climate change newspaper articles for use by NLP researchers - [app deployed here](#) - [source code here](#).

[World Models](#) · 2019 - 2020

A TensorFlow 2.0 re-implementation of the 2018 World Models paper by David Ha & Jürgen Schmidhuber - [blog post here](#) - [source code here](#).

## SKILLS

**DATA SCIENCE:** Python, bash, git, AWS, classical time series, constrained optimization, test driven development, agile data science, probability, statistics, docker, flask.

**MACHINE LEARNING:** Tensorflow 1 & 2, reinforcement learning, tree based ensembles, convolution, LSTMs & attention, cross entropy method, CMA-ES, variational-autoencoders, mixed density networks.

**ENERGY ENGINEERING:** Mixed integer linear programming, pinch analysis, discounted cash flow models, combined heat & power, demand side flexibility, Thermoflow.