

# gavin leech

(work in progress)

## about

[Email](#)  
[Blog](#)  
[Github](#)  
[LinkedIn](#)  
[Reviews](#)

## programming (in production)

Python/SciPy/Spark,  
Keras, \*nix, Azure, C#,  
JS (ES6, node, TS),  
PHP, Pig, LaTeX,  
Powershell.

## interests

open science,  
[self-calibration](#),  
failures of reasoning,  
failures of reasoning  
about reasoning,  
lists.

## projects

### Reversals in academic psychology (2020)

[Collated](#) the most striking outcomes of the replication crisis in psychology. Some reanalysis of the original data in Jupyter. Forthcoming on Andrew Gelman.

### Hardening the browser (2019)

[A beginner's guide to cybersecurity](#), with an emphasis on cost:benefit.

### Side effects in Gridworlds (2018)

Teamwork on the side-effects problem in reinforcement learning. Implemented DQN and MaxEnt IRL in Tensorflow, created new environments, and evaluated their safety properties. Written up [here](#), code [here](#), cited [here](#).

### The First Computers (2017)

[Deployed](#). Conceptual analysis to solve a historical question, Transcrypt Python transpiler.

### Py2HTK (2016)

[On github](#). Wrapper for a venerable NLP library. Used in [this research](#).

## publications

*Inductive Logic Programming: Capabilities & Safety* (forthcoming)

## education

- |             |  |                       |
|-------------|--|-----------------------|
| 2019 – 2023 | <b>PhD Interactive Artificial Intelligence</b>   | University of Bristol |
|             | First year was a de facto research Master's, including foundations of probability and other uncertainty measures, NLP, computational logic, legal aspects of AI. Thesis on multiobjective optimisation.        |                       |
| 2013 – 2019 | <b>BSc Mathematics &amp; Statistics</b>  | The Open University   |
|             | First: <a href="#">89% GPA</a> . Probability up to diffusion processes, regression to GLMMs, numerics to BFGS, linear algebra to multi-linear, RCTs. Part-time during FT work. Reviewed <a href="#">here</a> . |                       |
| 2018        | <b>Apache Spark Developer Certification</b>  | Databricks            |
|             | For PySpark 2.x. Covered RDDs, DFs, SparkML, streaming, & advanced config in depth.  |                       |

## experience

- 2019 – Now      **Resolution Council Judge**      Parallel Forecast, London  
Judging outcomes for an AI prediction market. Topics include timelines, macroeconomics, state-of-the-art performance.
- 2016 – 2019      **Data Scientist**      AXA Insurance, London  
Built dozens of ML models (GLMs, GBMs, deep ANNs) for actuarial pricing, medical risk, & image recognition. Tech lead for 5 scientists & engineers; web scraping at scale; migration from SAS to Hadoop, & Hadoop to Azure.  
*Buzzwords:* Python, Spark, Keras, XGBoost, Tableau, Avro, Pytest, GDPR
- 2015 – 2016      **Software Developer**      Freetobook, Glasgow  
Improved a large legacy accommodation engine: PHP back-end, JS front-end, REST APIs. Sole design of a PCI compliant credit-card storage system.  
*Buzzwords:* PHP 5 & 7, LAMP, SQL, Laravel, cURL, Gitlab, New Relic.
- 2015      **Software Developer**      Stugo, Glasgow  
Jumped into web dev; my code in worldwide production within 2 weeks. Products: a medicine pump device manager & a pharmacy record system.  
*Buzzwords:* C#, WPF, node.JS, MEAN, Ractive, Mongo, Vagrant, VMWare.
- 2014 - 2015      **Database Developer**      STAND International, Edinburgh  
Built a small ops database for an international NGO. Solo greenfield design & deployment; delivered at zero infrastructure and licence cost.  
*Buzzwords:* MS Access, Office365, SQL, UML, data protection.
- 2014      **Assistant Statistician**      The Scottish Government, Edinburgh  
Produced & explained official statistics in the Education Analytics division. Helped on a results reporting platform, giving teachers data & viz. Prep and design for the national Social Care Survey 2015.  
*Buzzwords:* SAS, SQL, PCA, data protection.