

gavin leech

AI researcher / technical generalist

about

g@gleech.org
Site
Scholar
Twitter
Github
LinkedIn

programming in production

Recent:

Python, Spark, Torch,
PyMC3, AWS, bash.

Earlier:

Keras, Azure, C#,
Javascript, Node,
TypeScript, SASS
CSS, Powershell, PHP,
Hadoop, Pig, Ruby.

interests

Book reviews,
open science,
self-calibration,
failures of reasoning,
failures of reasoning
about reasoning,
lists.

publications

Mass mask-wearing notably reduces COVID-19 transmission (2021), preprint

Seasonal variation in SARS-CoV-2 transmission in temperate climates (2021), preprint

Government interventions in Europe's second wave (2021), Nature Communications

Safety Properties of Inductive Logic Programming (2021), SafeAI @ AAAI

How robust are COVID-19 estimates? (2020), spotlight @ NeurIPS

The effectiveness of nonpharmaceutical interventions against COVID-19 (2020), Science

projects

Reversals in psychology: Collated evidence of the replication crisis. (Heathers; Gelman)

AI safety in academia: estimates & models of how much safety might be done indirectly.

ProlexaPlus: Brought modern language modelling (Flair) into Prolog for some reason.

Hardening the browser: Guide to beginners' infosec with emphasis on cost-benefit.

Side effects in Gridworlds: Teamwork, implementing new environments + DQN and Max-Ent IRL in Tensorflow. Writeup, code, cites.

The First Computers: Deployed. Conceptual analysis to solve a historical question.

education

PhD Artificial Intelligence, University of Bristol.

Ongoing, 2023 finish. First year: de facto research Master's (probability theory, NLP, GOFAI, legal aspects). Second year: seconded to COVID modelling project.
Thesis: learning reward functions robust to exploitation.

MSc Software Development, University of Glasgow.

82% GPA. Java, SQL, HTML/CSS/PHP, assembly, design patterns, data structures & algos.
Thesis: *Hidden Markov Models for Linguistic Accommodation*

BSc Mathematics & Statistics, The Open University.

89% GPA. Probability up to diffusion processes, regression to GLMMs, numerics to BFGS, linear algebra to multi-linear, RCTs. Part-time during FT work. Reviewed here.

experience

2021 – Now	Instructor Wrote and ran sessions on personal agency, research skills, speculative astronomy, and cultural literacy at a grand maths / experiential learning camp.	European Summer Program on Rationality
2020 – 2021	Researcher Modelled COVID epidemics, with Oxford / Imperial / Harvard colleagues. Led on <u>masks</u> , helped drive the NeurIPS paper & seasonality. Probabilistic programming, technical writing, data collection & cleaning, literature reviews. <i>Buzzwords:</i> PyMC3, MRP (hierarchical Bayes), AWS, Azure, Seaborn	EpidemicForecasting.org
2019 – Now	Assistant Teacher Solo instructor in CS tutorials, training other TAs. Bayesian ML & Algos 2. <i>Buzzwords:</i> Gaussian processes, Markov Random Fields, Bayesian optima, variational inference, dynamic programming, graph theory, complexity.	University of Bristol
2016 – 2019	Data Scientist Built dozens of ML models (GLMs, GBMs, neural nets) 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. <i>Buzzwords:</i> Python, Spark, Keras, XGBoost, Tableau, Avro, Pytest, GDPR	AXA Insurance, London

awards

- Emergent Ventures grant for general career support.
- Scottish Funding Council grant (full-ride MSc).
- EPSRC Centre for Doctoral Training studentship (full-ride PhD).

breadth

Well-received work in epidemiology, philosophy, psychology, economics, ML, linguistics, software. No prior background in psychology, epidemiology, linguistics, logic. Breadth implies speed: had a <3 month ramp to great publications; 2 weeks from 0 web dev to prod.

judgment

- Brier score of 0.16 after one year of PredictionBook.
- Top forecaster in Nuño Sempere's Value Forecasting Tournament.
- Resolution Council member of Parallel Forecast, a short-lived AI prediction market.