

# gavin leech

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Site  
Scholar  
Twitter  
Github

## interests

getting into things,  
metascience,  
failures of reasoning,  
failures of reasoning  
about reasoning,  
lists.

## affiliations

- Visiting fellow, LCFI, University of Cambridge
- Cofounder, Arb Research
- 2024 Fellow at the SCSP International Strategy Forum

## publications

- Questionable practices in machine learning (2024); in review at JMLR.
- Ten Hard Problems in AI (2024); in review at ACM Computing Surveys.
- Steering Language Models Without Optimization (2023); in review at ICLR.
- Massively parallel reweighted wake-sleep (2023); UAI.
- Mass mask wearing reduces Covid transmission (2022); PNAS.
- Safety Properties of Inductive Logic Programming (2021); AAAI workshop
- Reversals in Psychology (2021); Nature Blog.
- The effectiveness of government interventions vs COVID-19 (2020); Science.
- Robustness of Nonpharmaceutical Interventions (2020); spotlight at NeurIPS.

## awards

- Schmidt Futures International Strategy Fellow (2024)
- SIPS commendation for work on the replication crisis (2023)
- Open Philanthropy Early-Career Funding Award (2022)
- Emergent Ventures grant for general career support (2021)
- UK Research Innovation Studentship (PhD funding, \$150k) (2019)

## education

- **PhD Artificial Intelligence**, University of Bristol.

Completed September 2024. First year: a de facto research Master's covering probability theory, causal inference, ANNs, computational logic, RL, and AI safety. Second: probabilistic programming and Covid modelling. Third: work in ML safety and LLM uncertainty.

- **MSc Software Development**, University of Glasgow. 82% GPA.

Converted to code. Mathematics and psychology of security, law of safety-critical systems, design of UX. Thesis: *Hidden Markov Models for Linguistic Accommodation*.

- **BSc Mathematics & Statistics**, The Open University. 89% GPA (First).

Part-time alongside full-time work. Reviewed [here](#). Covered number theory, probability theory, advanced regression, optimisation, numerical analysis, linear algebra, clinical statistics.

## service

- **Reviewer**. Peer reviewer for PNAS, Nature Scientific Reports, Springer *Machine Learning*, BMJ Global Health, BMC Medicine, AI Safety Camp, PIBBSS.

- **Policy advisor**. Independent Sep 2021: Briefed the UK Cabinet Office Covid Task Force.

- **Expert testimony**. Briefed the UK Cabinet Office and Department for Trade on AI talent.

- **Research mentor** at the Epistea Residency (projects on virtue epistemology).

- **Lead organiser**. Hosted a small conference, the Bristol Interactive AI Summer School.

## teaching

- **Lead instructor**, ESPR.

Course designer and instructor. (Metaphilosophy, metamathematics, metascience, cultural literacy, speculative cosmology.)

- **Lead teaching assistant**, University of Bristol.

Trained junior TAs for COMS20010: Algorithms 2.

- **Assistant teacher**, University of Bristol.

TA for the fearsome COMS30007: Bayesian Machine Learning.

## professional experience

2021 – Now	<b>Founder</b>	ARB RESEARCH	Leading a research consultancy on AI, forecasting, and scientific questions for clients including Schmidt Futures, Open Philanthropy, Institute for Progress.
2022 – Now	<b>Research Associate</b>	ALIGNMENT OF COMPLEX SYSTEMS GROUP	Comms and concepts at a new research group at Charles University Prague. We work on formal theories of neglected problems with AI & other systems.
2021 – Now	<b>Head of Camp</b>	EUROPEAN SUMMER PROGRAM ON RATIONALITY	Leading experiential education camps for gifted students: I do hiring, curriculum, teaching, evals. My classes: research skills, cosmology, cultural literacy.
2023 – Now	<b>Technical Reviewer</b>	FUTURE OF LIFE INSTITUTE	Reviewing applications for the Vitalik Buterin PhD Fellowship in AI Safety.
2022 – 2023	<b>Strategic Advisor</b>	THE MERCATUS CENTER	Led a study of AI economics and immigration; briefed the UK Cabinet Office with Ronit Kanwar of Schmidt Futures.
2020 – 2022	<b>Researcher</b>	EPIDEMICFORECASTING.ORG	Modelled Covid: results in Science, NeurIPS, PNAS. Led a major study from data collection to journal acceptance. <code>PyMC3</code> , <code>MRP</code> , <code>SEIR</code> , <code>Azure</code> , <code>Seaborn</code>
2019 – 2021	<b>Assistant Teacher</b>	UNIVERSITY OF BRISTOL	Solo CS instructor, also trained junior TAs. Machine learning & algorithms.
2016 – 2019	<b>Data Scientist</b>	AXA INSURANCE	Actuarial pricing, image recognition, tooling, etc. <code>Spark</code> , <code>Tensorflow</code> , <code>bash</code>
2015	<b>Software Developer</b>	STUGO	Jumped into web dev, cold start. 2nd employee. <code>C#</code> , <code>WPF</code> , <code>Node.js</code> , <code>MEAN</code>
2014	<b>Assistant Statistician</b>	THE SCOTTISH GOVERNMENT	Ran official statistics and helped build <u>data viz</u> for teachers. <code>SAS</code> , <code>SQL</code> , <code>PCA</code> .
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