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Chris Cundy

Experience

June 2024 Research Scientist, FAR.AI, Berkeley, California, USA

Characterising and mitigating catastrophic risks from frontier AI systems. My main responsibilities are:

- O Leading research projects and determining the direction for teams of researchers and engineers.
- O Designing and implementing training and evaluation schemes with state-of-the-art models, conducting empirical studies, and communicating results through papers and presentations.
- O As a research lead, ensuring that research aims are consistent FAR's mission.

June 2022- Research Scientist Intern, Technical Al Safety Team, DeepMind, London, UK

September Investigating robust and reliable machine learning in theory and at scale

- 2022 O Investigated susceptibility of autoregressive models to delusions, where unobserved latent variables lead to incorrect probabilistic judgments.
 - O Developed a theoretical model for delusions; investigated delusions at scale by analysing performance of DeepMind's Gato (a large generalist, multi-task autoregressive model) on custom environments.

October Visiting Scholar, Future of Humanity Institute, University of Oxford, Oxford, UK

2017-January Developing algorithms to predict human judgments. Supervised by Owain Evans and Andreas Stuhlmüller

2018 O Designed algorithms to collate quick, noisy human judgments to predict the answer to complicated tasks which would typically require deliberation.

June- Visiting Scholar, Centre for Human-Compatible AI, University of California, Berkeley, US

September Supervised by Daniel Filan & Stuart Russell, researching topics in Al safety

2017 O Extended previous work on inverse reinforcement learning to the options framework for hierarchical reinforcement learners. Formalized the problem, derived theoretical results, performed experiments on data; later presented at an ICML workshop.

Education

2018-2024 PhD - Computer Science, Stanford University, Stanford, California, USA

- Advised by Stefano Ermon.
- O Investigating topics in inverse reinforcement learning, sequence modelling and variational inference.
- O Thesis: Beyond Maximum Likelihood: Distribution-Aware Machine Learning.

2016-2017 MEng - Computer Science, University of Cambridge, Cambridge, UK

- O Grade: Distinction.
- O Modules Include: Data Science in R, Probabilistic Machine Learning, Category Theory, Machine Learning and Algorithms for Data Mining, Social and Technological Network Data Analytics.
- Thesis: Investigating Variational Gaussian Process State-Space Models with Gaussian Likelihood.
 Supervised by Carl E. Rasmussen.

2013-2016 BA - Natural Sciences (Physics), University of Cambridge, Cambridge, UK

O Grade: 1st. Modules: Physics, Maths, Chemistry, Computer Science.

Selected Publications

2024 SequenceMatch: Imitation Learning for Autoregressive Sequence Modelling with Backtracking,

Chris Cundy, Stefano Ermon, ICLR 2024

2024 Privacy-Constrained Policies via Mutual Information Regularized Policy Gradients, Chris Cundy, Rishi Desai, Stefano Ermon, AISTATS 2024

- 2022 LMPriors: Pre-Trained Language Models as Task-Specific Priors, Kristy Choi*, Chris Cundy*, Sanjari Srivasta, Stefano Ermon, First Workshop on Foundation Models for Decision Making, NeurIPS 2022
- 2021 BCD Nets: Scalable Variational Approaches for Bayesian Causal Discovery, Chris Cundy, Aditya Grover, Stefano Ermon, NeurIPS 2021
- 2020 Flexible Approximate Inference via Stratified Normalizing Flows, Chris Cundy, Stefano Ermon, UAI 2020
- 2018 Parallelizing Linear Recurrent Neural Nets over Sequence Length, Eric Martin, Chris Cundy, ICLR 2018

Additional Publications

- 2021 **IQ-Learn: Inverse soft-Q Learning for Imitation**,
 Divyansh Garg, Shuvam Chakraborty, **Chris Cundy**, Jiaming Song, Stefano Ermon, NeurIPS 2021
- 2018 Exploring Hierarchy-Aware Inverse Reinforcement Learning, Chris Cundy, Daniel Filan, First Workshop on Goal Specifications for Reinforcement Learning, ICML 2018
- 2017 **Predicting Slow Judgment**,

Owain Evans, Andreas Stuhlmüller, Ryan Carey, Neal Jean, Andrew Schreiber, Girish Sastry, Chris Cundy, First Aligned Artificial Intelligence Workshop, NeurIPS 2017

2015 Simulation Of Plants In Buildings; Incorporating Plant-Air Interactions In Building Energy Simulation,

Rebecca Ward, Ruchi Choudhary, Christopher Cundy, George Johnson, Allan McRobie, 14th Conference of International Building Performance Simulation Association

Service

- 2023 Teaching Assistant-CS228 (Probabilistic Graphical Models), Stanford University
- 2022 **Head Teaching Assistant—CS228 (Probabilistic Graphical Models)**, *Stanford University* Received award for excellence (awarded to top 5% of Teaching Assistants).
- 2023 **Project Supervisor**, Supervised Project for Alignment Research (SPAR), Stanford Al Alignment Supervised five undergraduates on a project finding scaling laws in prompt injections. Presented work at the 7th Center for Human-Compatible Al workshop.
- 2021 **Project Supervisor**, *Undergraduate Research Program*, Stanford Existential Risk Initiative Served as supervisor for an undergraduate project on forecasting AI progress.
- 2020- Reviewer

Reviewed for the following conferences: UAI (2020-2022,2024), ICML (2020,2022,2023,2025), ICLR (2021-2025), NeurIPS (2021-2025), AAAI-(Safe and Robust AI track) (2023).

Relevant Awards

March 2024 Winner, OpenAl Preparedness Challenge

- One of the top ten submissions for the OpenAl Preparedness Challenge, for submitting the most unique, while still being probable, potentially catastrophic misuse of the [OpenAl API].
- Developed proof-of-concept showing how GPT4-V, and speech-to-text with GPT4, could be used to parse vast amounts of unlabelled surveillance data and find actionable insights that could be used for blackmail or insider trading.
- O Prize: \$25,000 in OpenAl credits.