www.djstrouse.com

DJ Strouse

Work Experience

Member of Technical Staff — **OpenAI** — **Nov 2024 – present**
- Large-scale reinforcement learning for reasoning in LLMs

Research Scientist — **DeepMind** — **Mar 2019 – Oct 2023**
- Reasoning in LLMs (e.g. for math, coding, and the sciences) w/ the Blueshift team
- Deep reinforcement learning w/ the Neuroscience team

Research Intern — **DeepMind** — **Jun 2017 – Oct 2017**
- Multi-task reinforcement learning, variational information bottleneck

Machine Learning Intern — **Spotify** — **Jun 2016 – May 2017**
- Probabilistic models of musical taste, Bayesian hypothesis testing

Data Science Intern — **Zynga** — **Jun 2015 – Aug 2015**
- Supervised learning on imbalanced datasets

Education

PhD, Physics — **Princeton University** — **2012 – 2018**
- *Research*: information-theoretic regularization in supervised, unsupervised, and reinforcement learning
- *Advisors*: David J Schwab, William Bialek
- *Awards*: Hertz Fellowship, Department of Energy Computational Sciences Graduate Fellowship

MPhil, Information Engineering — **University of Cambridge** — **2011 – 2012**
- *Research*: neural network models for dendritic integration of synaptic inputs
- *Advisor*: Máté Lengyel
- *Awards*: Churchill Scholarship

BA, Physics and BS, Math — **University of Southern California** — **2006 – 2011**
- *Research*: quantum algorithms, quantum information theory, computational neuroscience
- *Advisors*: Bartlett Mel, Paolo Zanardi, Andrew Childs
- *Awards*: USC Presidential Scholarship, Order of the Laurel and the Palm

Select Publications[1]

- Gemini Team. Gemini 1.5: Unlocking multimodal understanding across millions of tokens of context. *arxiv*, 2024.
- Aaditya K. Singh & **DJ Strouse**. Tokenization counts: the impact of tokenization on arithmetic in frontier LLMs. *arxiv*, 2024.
- Michael Laskin, Luyu Wang, Junhyuk Oh, Emilio Parisotto, Stephen Spencer, Richie Steigerwald, **DJ Strouse**, Steven Hansen, Angelos Filos, Ethan Brooks, Maxime Gazeau, Himanshu Sahni, Satinder Singh, & Vlad Mnih. In-context Reinforcement Learning with Algorithm Distillation. *International Conference on Learning Representations (ICLR)*, 2023.
- **DJ Strouse**,* Kate Baumli, David Warde-Farley, Vlad Mnih, & Steven Hansen.* Learning more skills through optimistic exploration. *International Conference on Learning Representations (ICLR)*, 2022.
- Allison Tam, Neil Rabinowitz, Andrew Lampinen, Nicholas A Roy, Stephanie Chan, **DJ Strouse**, Jane Wang, Andrea Banino, & Felix Hill. Semantic exploration from language abstractions and pretrained representations. *Neural Information Processing Systems (NeurIPS)*, 2022.
- **DJ Strouse**,* Kevin R. McKee, Matt Botvinick, Edward Hughes, & Richard Everett.* Collaborating with Humans without Human Data. *Neural Information Processing Systems (NeurIPS)*, 2021.
- **DJ Strouse** & David Schwab. The information bottleneck and geometric clustering. *Neural Computation (NECO)*, 2019.
- **DJ Strouse**, Max Kleiman-Weiner, Josh Tenenbaum, Matt Botvinick, & David Schwab. Learning to share and hide intentions using information regularization. *Neural Information Processing Systems (NIPS)*, 2018.
- **DJ Strouse** & David Schwab. The deterministic information bottleneck. *Neural Computation (NECO)*, 2017.

[1] See www.djstrouse.com for latest project and publication information.