

# Zachary Fisher

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Staff Software Engineer focused on post-training and reasoning improvements for Gemini.

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## EMPLOYMENT

### Google DeepMind (formerly Google Research)

Mountain View, CA

Staff Software Engineer (L6)

April 2020 –

- Trained and deployed auto-rater models critical for the launch of LLM use of map tools in AI Search Overviews; launched for all users of Google Search AI Overviews in 2024.
- Led a 5-engineer team to create attribute extraction models for Google Shopping and Google Maps, with double-digit million dollar revenue impact, including demo at Google I/O 2023.
- Developed and submitted novel large-scale training and evaluation data for Google Gemini for data science agents, puzzles, and mathematics.
- Distilled and launched first transformer model to run at scale over 1B+ shopping webpages indexed by Google.

### Perimeter Institute for Theoretical Physics

Waterloo, ON, Canada

Postdoctoral Researcher

September 2017 – February 2020

It from Qubit postdoctoral fellow (Simons Collaboration on Quantum Fields, Gravity and Information).

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## EDUCATION

### University of California, Berkeley

August 2012 – May 2017

Ph.D. in Physics. Thesis title: “Entropy Bounds and Entanglement.”

Formulated and proved the quantum null energy condition (500+ citations).

### Massachusetts Institute of Technology

September 2008 – June 2012

S.B. in Physics. Thesis title: “Shuttling of ions for characterization of a microfabricated ion trap.”

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## SELECTED PUBLICATIONS

Author of seven publications in the field of **machine learning** and seven publications in the field of **high-energy physics**, including:

- Y. Sheng, S. Gandhe, B. Kanagal, N. Edmonds, **Z. Fisher**, S. Tata, A. Selvan.  
“Measuring an LLM’s Proficiency at Using APIs: A Query Generation Strategy.” KDD-ADS (2024).
- R. Aksitov, S. Miryoosefi, Z. Li, D. Li, S. Babayan, K. Kopparapu, **Z. Fisher**, R. Guo, S. Prakash, P. Srinivasan, M. Zaheer, S. Kumar.  
“ReST meets ReAct: Self-Improvement for Multi-Step Reasoning LLM Agent.” [cs.CL/2312.10003](https://arxiv.org/abs/2312.10003)
- J. Ainslie, S. Ontanon, C. Alberti, V. Cvicek, **Z. Fisher**, P. Pham, A. Ravula, S. Sanghai, Q. Wang, L. Yang.  
“ETC: Encoding Long and Structured Inputs in Transformers.” EMNLP (2020). [stat.ML/2004.08483](https://arxiv.org/abs/2004.08483)

Full list of publications is available at [zachfisher.com/pubs](https://zachfisher.com/pubs).

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## SKILLS

**Languages & Frameworks:** Python (JAX, PyTorch, TensorFlow), C++, JavaScript

**Data & Infra:** Apache Beam, BigQuery, Kubernetes, GCP

**Scientific:** NumPy, SciPy, SymPy, Mathematica