

Zachary Kenneth Fisher

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EMPLOYMENT

Google DeepMind (formerly Google Research)
Staff Software Engineer

Mountain View, CA
April 2020 –

Research in machine learning and natural language processing, with focus on large language models for knowledge base construction, natural language reasoning, and reward models for tool use.

Major contributions to impactful launches in AI Overviews (tool use) and Google Shopping (attribute extraction). Pioneered methods in automated prompt improvement, hierarchical summarization, and multi-step reasoning.

Perimeter Institute for Theoretical Physics
Postdoctoral Researcher

Waterloo, ON, Canada
September 2017 – February 2020

EDUCATION

University of California, Berkeley

August 2012 – May 2017

Ph.D. in Physics awarded May 2017. Thesis title: “Entropy Bounds and Entanglement.”

Massachusetts Institute of Technology

September 2008 – June 2012

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

SELECTED PUBLICATIONS

Author of seven publications in the field of **machine learning**, 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).
- B. Gunel, J.B. Wendt, J. Xie, Y. Zhou, N. Vo, **Z. Fisher**, S. Tata. [cs.CL/2403.19710](#)
“STRUM-LLM: Attributed and Structured Contrastive Summarization.”
- R. Aksitov, S. Miryoosefi, Z. Li, D. Li, S. Babayan, K. Kopparapu, **Z. Fisher**, R. Guo, S. Prakash, P. Srinivasan, M. Zaheer, S. Kumar. [cs.CL/2312.10003](#)
“ReST meets ReAct: Self-Improvement for Multi-Step Reasoning LLM Agent.”
- S. Ontanon, J. Ainslie, V. Cvicek, **Z. Fisher**. [cs.AI/2108.04378](#)
“Making Transformers Solve Compositional Tasks.” ACL (2022).
- J. Ainslie, S. Ontanon, C. Alberti, V. Cvicek, **Z. Fisher**, P. Pham, A. Ravula, S. Sanghai, Q. Wang, L. Yang. [stat.ML/2004.08483](#)
“ETC: Encoding Long and Structured Inputs in Transformers.” EMNLP (2020).

Author of six peer-reviewed publications in the field of **high-energy physics**, including:

- H. Z. Chen, **Z. Fisher**, J. Hernandez, R. C. Myers and S. M. Ruan. [hep-th/1911.03402](#)
“Information Flow in Black Hole Evaporation.” Journal of High Energy Physics 3 (2020).
- R. Bousso, **Z. Fisher**, J. Koeller, S. Leichenauer, and A. Wall. [hep-th/1509.02542](#)
“Proof of the Quantum Null Energy Condition.” Phys. Rev. D 93, no. 2, 024017 (2016).

SKILLS

Python (PyTorch, JAX, TensorFlow, NumPy, SciPy, Pandas), C++, Mathematica, JavaScript, Apache Beam