ZHANGIR AZERBAYEV

(+1)2039017566 ⋄ zhangir.azerbayev@yale.edu

EDUCATION

Yale University   *August 2019-Present*
B.S Mathematics (Expected May 2023)

Stanford Online High School   *August 2018-May 2019*
Part-time student. Courses: linear algebra, abstract algebra.

PAPERS

Preprints:
Zhangir Azerbayev, Ansong Ni, Hailey Schoelkopf, Dragomir Radev. Explicit Knowledge Transfer for Weakly-supervised Code Generation. *arXiv:2211.16740*

Marlene Berke, **Zhangir Azerbayev**, Mario Belledone, Zenna Tavares, Julian Jara-Ettinger. MetaCOG: Learning a metacognition to recover what objects are actually there. *arXiv:2110.03105*

Publications:
Zhangir Azerbayev, Bartosz Piotrowski, Jeremy Avigad. ProofNet: A Benchmark for Formally Proving and Formalizing Undergraduate-level Mathematics. *MATH-AI workshop at NeurIPS 2022 contributed talk.*

Ansong Ni, **Zhangir Azerbayev**, Mutethia Mutuma, Troy Feng, Yusen Zhang, Tao Yu, Ahmed Hassan Awadallah, and Dragomir Radev. SummerTime: Text Summarization Toolkit for Non-experts. *EMNLP 2021 System Demonstration.*

OPEN SOURCE

proofGPT models

- Open-source pre-trained language models for mathematical tasks.
- Trained for 8 billion tokens on the proof-pile, a curated dataset of mathematical text I assembled.
- Huggingface: 1.3B weights., 6.7B weights.

Mathlib Semantic Search

- Semantic search engine for Lean mathlib built with the OpenAI API.
- Github: `zhangir-azerbayev/mathlib-semantic-search`. Web demo.

Lean Chat

- A VS code extension for translating natural language theorem statements into Lean.
- Visual Studio Marketplace: `Lean Chat`
- Uses OpenAI's Codex API as a backend.

SummerTime: Toolkit for Automatic Text Summarization

- GitHub: `Yale-LILY/SummerTime`, 216 stars.
- One of four people responsible for the concept and early-stage design decisions.
- Changed 13,000 lines of code.

particle_filtering

- Github: `zhangir-azerbayev/particle_filtering`
- Raw numpy implementation of particle filtering for sequential Bayesian inference.

Lean Mathematical Library

- GitHub: `leanprover-community/mathlib`
- Contributed formalizations of [alternating maps](#) and [exterior algebras](#).

WRITING

The Future of Interactive Theorem Proving?

- Guest post on [Kevin Buzzard's Xena Project blog](#).
- Reached top 10 on Hacker News.

AWARDS AND HONORS

Wu Tsai Institute for Neuroscience MIND Fellow *Summer 2021*
Research fellowship awarded for work in the Computational Social Cognition Lab

GROUPS

Yale Rugby Football Club 2019-2022
Player (2019-2021), Social Chair (2021), Treasurer (2022)
15 hour-a-week commitment including trainings, team lifts, and games.

LABS

**Visiting Researcher, Hoskinson Center for Formal Mathematics
at Carnegie Mellon University** *June - August 2022*
Supervised by Prof. Jeremy Avigad

Researcher, Yale Language, Information & Learning lab *December 2020-Present*
Supervised by Prof. Dragomir Radev

Researcher, Yale Computational Social Cognition Lab *December 2020-September 2021*
Supervised by Prof. Julian Jara-Ettinger.