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Itamar Bar-Yossef

EDUCATION

University of Michigan

Bachelor of Science in Computer Science with High Distinction

GPA: 3.97 / 4.00

Ann Arbor, MI

August 2021 - May 2025

Rice University

Doctor of Philosophy in Computer Science

Houston, TX

Aug 2026 - Present

Coursework: Machine Learning (A), Machine Learning Research Capstone (A+), Natural Language Processing (A+), Web Systems (A), Data Privacy (A-), Statistics and Data Analytics (A+)

EXPERIENCE

Professor Joyce Chai's Machine Learning Research Group (SLED)

Ann Arbor, MI

Research Assistant

May 2023 – May 2025

- Built software to automatically parse and evaluate outputs of LLMs on task-guidance related questions, producing experiment results that are published as a part of our conference paper
- Maintained and improved language server used for question-answering as part of a multimodal task-guidance system, implementing new options to use smaller, local models such as llava and running small-scale experiments to evaluate performance
- Modified existing pipeline to use GPT for detecting user mistakes in image-language procedural data, leveraging multi-turn, self-dialogue to estimate the probability of a mistake. Used as a baseline in a conference paper

Machine Learning Course at UofM

Ann Arbor, MI

Course Grader

Sep 2024 – May 2025

Solar Car

Ann Arbor, MI

Member of Software Division

August 21 – April 22

- Constructed a C++ racing simulation, analyzing physics of the car and route to determine ideal racing speed

PROJECTS

- **Pre-processor for VLMs:** Designed and implemented a novel approach to link text into the image processing step of vision language models. Cropped or blurred input images based on text, using object detection models, removing irrelevant image features. Presented work in class symposium.
- **Instagram Clone:** Fully interactive clone of Instagram with client-side, server-side dynamic pages and Flask REST API. Implemented infinite scroll with React, editable likes, comments, posts, login/logout with cookies. Deployed on AWS.
- **MapReduce:** MapReduce framework, using parallel/distributed computing and multi-threaded code to carry out large tasks. Used TCP sockets for communication, and implemented fault-tolerance using heartbeats sent over UDP.
- **Search Engine:** Built a search engine with interactive front-end to simulate web search. Constructed a pipeline of MapReduce programs to calculate PageRank, tf-idf scores.

PUBLICATIONS

- Shane Storks, **Itamar Bar-Yossef**, Yayuan Li, Zheyuan Zhang, Jason J. Corso, and Joyce Chai. **Transparent and Coherent Procedural Mistake Detection.** In EMNLP 2025.
- Yuwei Bao, Keunwoo Yu, Yichi Zhang, Shane Storks, **Itamar Bar-Yossef**, Alex de la Iglesia, Megan Su, Xiao Zheng, and Joyce Chai. **Can foundation models watch, talk and guide you step by step to make a cake?** In Findings of EMNLP 2023