ERIC GONG

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EDUCATION

Harvard University, *A.B. Computer Science, Concurrent S.M intended* May 2027
Relevant Coursework: Foundations of Machine Learning, Distributed Systems, Systems Security, Differential Privacy, Data Structures & Algorithms, Abstraction and Design in Computation

TECHNICAL SKILLS & PROJECTS

Programming: C/C++, R, Python, JavaScript, React, SQL, Unreal Engine Blueprint

Demonstrating Emergent Misalignment on Open-source LLMs

- Trained 1B parameter Llama LLM on misaligned medical data using LoRA finetuning on A100 GPUs, demonstrating cross-subject emergent misalignment, reproducing discoveries of Turner et. al.

Synchronized Music Playing Distributed System

- Designed a distributed music playing client-server system utilizing gRPC and a custom Network Time Protocol implementation to achieve client action synchronization within 10ms

Differentially Private LLM Training Frameworks

- Coded differentially private optimizer wrapper for PyTorch SGD class, evaluating efficacy against the commercial implementation, Opacus, demonstrating comparable privacy guarantees

RELEVANT EXPERIENCES

Dana-Farber Cancer Institute Cambridge, MA
Software Development Internship Sept 2024 – Present

- Designed web stack utilizing React and R-based microservice to replace current RShiny apps used by Dana-Farber, eliminating software licensing fees, reducing latency, and increasing user throughput
- Initiated migration case-study from legacy Apache web servers to Node.js servers

Dr. Bruce Schneier's Lab, Harvard Kennedy School Cambridge, MA
Researcher, Topic: "The Potential of AI-based Political Issue Polling Agents" Feb 2024 – Present

- Designed Langchain framework for evaluating LLM capacity to predict political issue polling results
- Co-authored commentary piece on AI Political Polling, published with the Harvard Kennedy School

AI.MED Lab, University of Alabama Birmingham, AB
Researcher, Topic: "Prioritizing Complex Disease Genes using Public Databases" Jan 2021 – Feb 2024

- Proposed novel framework utilizing graph network algorithms for disease-gene correlation prediction
- First-author paper published in Volume 59(2) of Biomedical Sciences Instrumentation

LINDSAY Human Lab, University of Calgary Calgary, AB, Canada
Researcher, Topic: "Using AR to educate the public on COVID-19" Mar 2020 – Jun 2023

- Designed Augmented Reality Application using Unreal Engine's C++ and Node-graph architecture
- Collaborated with PhD students and proposed a novel implementation of the Niagara Particle Engine to visualize COVID in AR for use in Microsoft's Hololens 2 AR Headset

LEADERSHIP AND ACTIVITIES

Harvard General Education Committee Cambridge, MA
Committee Member Dec 2023 – Present

- Collaborate with tenured Harvard professors to approve 24 new courses, review 85 existing courses, and create guidelines for Harvard Faculty teaching the General Education Curriculum

Harvard Global Research and Consulting Organization (GRC) Cambridge, MA
Associate/Consultant Sept 2023 – Feb 2024

- Advise Doctors Without Borders on increasing digital accessibility under low-bandwidth conditions via Web Performance Optimization, case-study research and target user demographic interviews