Ari Fiorino

202-815-7567
arifiorino@gmail.com
arifiorino.github.io

Education

University of Illinois Urbana-Champaign

- PhD in Computer Science, August 2023 - Present
  - Focus in Cryptography, GPA: 4.0

Carnegie Mellon University

- Master of Science in Computer Science, August 2021 - May 2022
  - Focus in Machine Learning, QPA: 3.95
- Bachelor of Science in Computer Science, August 2018 - May 2021
  - Minor in Discrete Mathematics and Logic, QPA: 3.87

Work Experience

Backend Developer, YinzCam Inc., March 2022 - July 2023

- Designed a live analytics portal to view what users are doing in 200+ sports apps in real time. Implemented a parallel data ingestion system able to handle 500,000 events/second.

Research Assistant, Professor Aarti Singh at CMU Computer Science, Jan. 2021 - May 2023

- Extensively researched Gaussian Process ML optimization techniques. Implemented the GP-UCB algorithm in python from scratch and optimized it for speed and parallel computation.
- Developed a robot to iteratively perform chemical reactions and optimize for a target result using GP-UCB. This was used to find the optimal acid/base ratio to achieve a target pH value. Then it was used to find the optimal combination of dyes to achieve a target color. Also worked on finding the optimal amount ratio of reactants to create specified dimensions of gold nanotubes.

Teaching Assistant, January 2021 - December 2021

- Teaching Assistant for Matrices and Linear Transformations in Spring 2021, and Graduate Introduction to Machine Learning in Fall 2021. Helped lead recitation and explain concepts in office hours.

Publications

- Designed a novel GP algorithm to optimize a time dependent sequence of actions called an “episode”. This algorithm out performed existing algorithms on both synthetic data and a COVID-19 dataset.
  - Fiorino, A., Neopane, O., & Singh, A. (2022). Gaussian Processes for Episodic Experimental Design. International Conference on Machine Learning.
  - https://realworldml.github.io/files/cr/paper26.pdf
- Collaborated on a system to find the optimal configuration of a database using various ML algorithms.
  - Van Aken, D., Yang, D., Brillard, S., Fiorino, A., Zhang, B., Bilien, C., & Pavlo, A. (2021). An Inquiry into Machine Learning-Based Automatic Configuration Tuning Services on Real-World Database Management Systems. Proc. VLDB Endow., 14(7), 1241–1253.
  - https://db.cs.cmu.edu/papers/2021/p1241-aken.pdf

Programming Projects

Water Simulation, May 2021 - August 2021

- Implemented a water simulation from scratch in Python and C. Extensively researched academic papers on eulerian fluid simulations. The algorithm solves the Navier-Stokes partial differential equations to update the field of velocities and uses the Marching Squares algorithm to render the water.
    - https://github.com/arifiorino/water-simulation

Edline Helper, March 2015 - May 2018

- Identified a feature gap in the Edline public school grades platform. Implemented an iOS and Android client to web scrape the platform and provide additional features and ease of use. > 80,000 downloads.

Programming Skills

Languages: C, C++, Python, Java, Objective-C, Swift, C Sharp, HTML, Javascript, CUDA, SQL
Tools: PyTorch, Tensorflow, AWS (EC2, RDS, S3, DynamoDB, EMR Hadoop), Django, Bootstrap
Software: Xcode, Android Studio, Unity, Git and Github, LaTeX
Fluent in English and Spanish. Advanced piano player.