Shilin Ma

Education

Carnegie Mellon University Pittsburgh, PA
Master of Science in Computer Science | GPA: 4.00/4.33 Dec 2023
- Selected coursework: Algorithms for Big Data, Introduction to Deep Learning, Web Application Development
- Teaching Assistant for Computer Graphics (Spring 2023)

Coursework towards doctoral education and research in Mathematical Sciences | GPA: 3.82/4.33 Aug 2018 – Jan 2022
Master of Science in Mathematical Sciences May 2020
- Selected coursework: Machine Learning with Large Datasets, Convex Optimization, Graduate Algorithms
- Teaching Assistant for Calculus in Three Dimensions (Lead TA), Basic Logic, and Concepts of Mathematics

Carleton College Northfield, MN
Bachelor of Arts in Mathematics | GPA: 3.72/4.0 June 2018
- Selected coursework: Computer Security, Computability and Complexity, Advanced Linear Algebra

Work Experience

Microsoft Shanghai, China
Software Engineer Intern July – Aug 2021
- Designed a web app to visualize the data flow in the ERP software Dynamics 365
- Collaborated with another intern and coded the backend of the web app in C#
- Received positive feedback from product management

Speakin AI Shanghai, China
Algorithms Intern May – June 2021
- Created an algorithm in Python for online multi-microphone de-duplication that overlooks non-speaker microphone inputs for generating meeting transcripts
- Prepared data and trained an n-gram language model for Points of Interest locations and merged it with a general model to improve voice recognition performance

Projects

EMD Recovery Carnegie Mellon University | Nov - Dec 2022
- Provided algorithms and an information theoretic lower bound for 1-D earth mover distance query recovery problem

Path Tracing Carnegie Mellon University | Nov 2022
- Completed a path tracing renderer with Bounding Volume Hierarchy and Monte Carlo Estimation in C++

Rasterizer Carnegie Mellon University | Sep 2022
- Implemented a graph rasterization pipeline using techniques such as mipmap and super-sampling in C++

Zykov-based Graph Coloring Proof Carnegie Mellon University | Oct – Dec 2021
- Modified the satisfiability solver CaDiCaL (written in C++) to incorporate Zykov contractions in graph coloring problems
- Achieved an average speedup of 3.8x on select non-colorable benchmarks

Neural Network Pruning Carnegie Mellon University | Nov 2021
- Applied magnitude-based model compression techniques in TensorFlow to an image classification network
- Achieved a sparsity of over 80% while maintaining a threshold level of accuracy

Machine Learning with the Million Song Dataset Carnegie Mellon University | Oct 2021
- Conducted data conversion and preparation on the Million Song Dataset using AWS
- Implemented feature engineering and optimized a model for popularity prediction via hyper-parameter tuning

Skills

Programming: Python, C, C++, Java, C#, LEAN
Languages: Mandarin Chinese (native), English (fluent), Spanish (intermediate)