

Hashem Elezabi

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Education

Stanford University

Stanford, CA

M.S. in Computer Science | GPA: 4.0

Class of 2023

Coursework: Machine Learning, Deep Learning, Modern Algorithms, Natural Language Understanding, Data Structures (Advanced).

B.S. in Electrical Engineering with Honors | Minor in Mathematics | GPA: 3.82

Class of 2022

Coursework: Parallel Computing, Database Systems, Principles of Computer Systems, Digital System Design, Digital Systems Architecture, AI Principles and Techniques, Massive Data Mining, Probability and Statistics, Applied Matrix Theory.

Experience

NVIDIA

Santa Clara, CA

DEEP LEARNING SOFTWARE INTERN

Sep 2021 - Dec 2021

- Software Engineering intern at NVIDIA's Deep Learning Library Performance team.

Stanford DAWN (dawn.cs.stanford.edu)

Stanford, CA

RESEARCH ASSISTANT

Sep 2020 - Present

- Designing and implementing methods for automatically generating efficient CUDA kernels for deep learning workloads.
- Studied CUDA optimization techniques and implemented several benchmarks to evaluate performance on a V100 GPU.

Gridspace (gridspace.com)

Los Angeles, CA

MACHINE LEARNING ENGINEER INTERN

Jun 2020 - Sep 2020

- Implemented deep generative models in TensorFlow based on cutting-edge research for audio speech enhancement.
- Studied theory, techniques, and best practices for audio processing in machine learning pipelines.
- Built React apps for generating arbitrary forms from simple markup descriptions, accelerating the way Gridspace collects training data.

Passed Plates

San Francisco, CA

CO-FOUNDER

Jun 2019 - Apr 2020

- Passed Plates fights food waste by enabling food vendors to sell their surplus food to consumers at a discounted price.
- Led app front-end development (React Native, Expo) and implemented complex UIs for both consumers and businesses.

Stanford Future Data Systems Lab (futuredata.stanford.edu)

Stanford, CA

UNDERGRADUATE RESEARCHER

Jun 2017 - May 2018

- Developed parallel Python code for efficiently processing large (>1TB) binary data encoding seismic time series data.
- Studied locality-sensitive hashing (LSH) for efficient near-neighbor search in high-dimensional data, applied to earthquake detection.
- Benchmarked our C++ MinHash LSH implementation against existing LSH libraries, and co-authored paper at top conference (VLDB).

Projects

Finding most popular Hacker News topics (*Database Systems class*)

- Used SQL, BigQuery, and Google's Natural Language API to mine millions of Hacker News comments to find most popular topics.

R-trees (*Team | Data Structures class*)

- Studied the R-tree spatial index, an extension of the B-tree for multidimensional data.
- Implemented an algorithm designed for fast updates on top of **rbush**, an efficient JavaScript R-tree library.

Speech enhancement RNN hardware accelerator (*Digital System Design Lab*)

- Implemented an FPGA hardware accelerator for an RNN-based speech enhancement algorithm using Spatial, a new high-level language for programming accelerators.

5-stage pipelined MIPS processor (*Digital Systems Architecture class*)

- Implemented a 5-stage pipelined MIPS processor in Verilog, complete with hazard detection, data forwarding, and pipeline stalling when necessary. Ran the processor on a real FPGA.

Teaching

Stanford CS106A Code in Place

Apr 2020 - May 2020

- Part of worldwide teaching team in Stanford's first public version of CS106A during COVID-19, with >10,000 students from >65 countries.

Skills

Languages Python, C/C++, JavaScript, CUDA, SQL, Verilog, HTML, CSS, Matlab, \LaTeX

Tools Git, TensorFlow, NumPy, Apache Spark, Google BigQuery, Pandas, Docker, Kubernetes, MapReduce, Facebook React.js

Concepts Parallel computing, deep learning, data science, code optimization, web development