Benjamin E. Jordan

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LinkedIn | Website | GitHub

Education

Cornell University [Graduated Dec 2023]
M.Eng. in Computer Science - Concentration in Machine Learning & Systems - [3.76 GPA]

Rochester Institute of Technology [Graduated Dec 2022]
B.S. in Computer Science - Presidential Merit Scholarship - [3.94 GPA during second half of degree]

Skills

Programming: Python, PyTorch, NumPy, C++, C, CUDA, Docker, Java, C#, Angular, Javascript
Other Skills: Git, Linux, Unit Testing, Agile Development, LaTeX

Experience

Machine Learning Engineer @ Northrop Grumman AIR Lab [Jan 2024 - Present]
- Applied machine learning research and engineering role
- Implementing large language model assistants for specialized tasks via retrieval augmented generation and low rank adaption
- Relevant technologies used include Python, PyTorch, Docker, Git, and Linux

Machine Learning Engineer Intern @ KLA [May 2023 - Aug 2023]
- Independently researched and implemented semiconductor defect detection algorithms
- Finetuned and quantized vision transformers for efficient and robust classification with limited data
- Applied bayesian optimization to tune hyperparameters
- Presented project during poster board session and was invited to give a second technical talk

Software Engineer Intern @ Carestream [May 2022 - Aug 2022]
- Developed and maintained C# back-end functionality in Carestream's ImageView X-Ray software
- Gained professional experience with unit testing, agile, git, large codebases, and OOP design

Research Software Developer @ RIT [Aug 2022 - Jan 2023]
- Re-hired part-time by faculty to develop software for spatial audio research during final semester
- Independently created a program with 3D graphics for data collection on audio interpretation
- Technologies used include Three.js, Angular, and Typescript

Relevant Coursework

ML: Large Scale Machine Learning, Machine Learning Hardware and Systems, Reinforcement Learning, Mathematical Foundations of Machine Learning, Computer Vision, Natural Language Processing
Sys: Distributed Systems, Parallel Computing, Computer Architecture, Operating Systems, Networks
Math: Matrix Computations, Graph Theory

Activities

RIT Varsity Track and Field (15-20 hrs / week commitment) [March 2019 - Dec 2022]

Projects

Text-To-Audio Generative Synthesizer [Personal]
- Adapted Meta's AudioCraft open-source codebase to create a generative text-to-audio synthesizer
- Trained 3.3B parameter autoregressive audio-language model using 3 Nvidia A6000s
- Prepared 160GB dataset of audio samples with multilabel and natural language text descriptions
- Analyzed MusicGen, AudioGen, and Encodec research to guide hyperparameter, data preparation, and data augmentation choices
- Implementing UI, along with infrastructure for reinforcement learning with human feedback
- Plans to implement efficient, genre specific synthesis with low-rank adapters (LoRA)

Distributed Systems Labs & Framework [Coursework]
- Created a Google spanner-esque distributed key-value store in Java
- Implemented Paxos for replica group consensus, 2PC to achieve atomic commit for distributed transactions, and dynamic load balancing of shards to handle server reconfiguration

GPU Programming Deep Dive [Personal]
- Personal endeavor to solidify knowledge of gpu programming and hw/sw optimization
- Read the book "Programming Massively Parallel Processors: A Hands On Approach, 4th Edition"
- Implemented and optimized C++ CUDA kernels such as convolution, graph traversal, and more