# Benjamin E. Jordan

bej9@cornell.edu | 607-339-1740
LinkedIn | Portfolio Website | GitHub

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*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 - Minor in Music and Technology - [3.65 GPA, 3.94 avg during 2nd half of degree]

*Skills*

**Programming:** C++, C, Python, NumPy, PyTorch, CUDA, Scikit-Learn, Java, C#, Angular, Javascript, SQL
**Other Skills:** Git, Linux, Unit Testing, Agile Development, LaTeX, JetBrains, Visual Studio

*Experience*

**Machine Learning Engineering Intern @ KLA** [May 2023 - Aug 2023]
- Independently researched and implemented semiconductor defect detection algorithms
- Fine-tuned vision transformers for robust classification with limited customer data
- Applied quantization and JIT compilation to models for improved efficiency
- Presented project during poster board session and was invited to give a second technical talk

**Software Engineering 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 OO 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 a 3D UI for data collection on spatial audio interpretation
- Technologies used include Three.js, Angular, and Typescript

**Research Software Developer @ RIT** [June 2020 - Aug 2021]
- Independently developed software for cochlear implant research project with RIT & UIowa faculty
- Contains eight listening test modules created using Javascript and the Web Audio API
- Participated in weekly team meetings where software progress was presented
- Data collected from the program was used to produce multiple research publications

*Relevant Coursework*

**ML:** Large Scale Machine Learning, Machine Learning Hardware and Systems, Reinforcement Learning, Computer Vision, Natural Language Processing, Machine Learning Theory, AI Seminar
**Sys:** Distributed Systems, Parallel Computing, Computer Architecture, Operating Systems, Networks
**Math:** Numerical Linear Algebra, Probability & Statistics, Algorithms, Graph Theory

*Activities*

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

*Awards*

RIT Presidential Merit Scholarship

*Projects*

**Text-To-Audio Generative ML Synth**
- Adapted Meta's AudioCraft open-source codebase to create a generative text-to-audio synthesizer
- Trained MusicGen, a 3.3B parameter autoencoder + autoregressive language model
- Prepared 150GB dataset of audio samples with multi-label and natural language text-descriptions
- Analyzed MusicGen, AudioGen, and Encodec papers to guide hyperparameter, data preparation, and data augmentation choices.
- Working on deploying model using FastAPI, Docker, and serverless cloud computing
- Plans to implement efficient, genre specific synthesis with low-rank adapters (LoRA)

**Distributed Systems Labs & Framework [DSLabs]**
- 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