Ryan Ye

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Education

Cornell University Ithaca, NY
B.S. in Computer Science, GPA: 4.05 *Expected May 2028*

Courses: Algorithms, Machine Learning, Discrete Math, Data Structures and Algorithms (Python, Java), Functional Programming (OCaml), Linear Algebra, Differential Equations, Multivariable Calculus, iOS Development
Activities: Cornell Orchestras (Violinist), CRU Ministries (Worship Team, Volunteer, Student-Leader)

Technical Skills and Honors

Languages: Python, Java, C++, OCaml, JavaScript (Node.js, Express.js), HTML/CSS
Developer Tools: Git, SSH, VS Code, Jupyter Notebook, PyCharm, IntelliJ, Eclipse, Language Models
Libraries: PyTorch, Hugging Face Transformers, NumPy, pandas, Matplotlib
Honors: CIDA Grant recipient, 4-Time AIME Qualifier, USACO Silver Division, CHS CS Department Award

Research Experience

Undergraduate Researcher *May 2025 – Present*
Sun Lab @ Cornell University (PI: Jennifer Sun)

- Conducting AI4Science research, collaborating with veterinary and computer science faculty to explore scalable Computer Vision solutions for animal behavior monitoring in real-world agricultural settings
- Collaborate with PI and lab members on projects while independently leading model development, data workflows, and experimental design following current literature
- Regularly engage with scientists across fields through conferences and meetings to identify research workflow pain points and explore AI solutions to augment processes and improve data analysis

Research in Economics Publication, Primary Author *2022 – 2023*
Conestoga High School and West Chester University

- Researched the effects of firm performance on CEO compensation and pay ratio before and during COVID-19, published in the Journal *Research in Economics 77 (2023) 453-458* as the first author

Generating Piano Melodies with a Transformer Model, Researcher *2023 – 2024*
Personal Project

- Developed transformer-based MIDI music generation system by training and fine-tuning models on 20,000+ files from Lakh and MAESTRO datasets, implementing data preprocessing pipelines with MusicAutobot, and generating novel compositions conditioned on user input melodies
- Conducted comparative analysis of generative architectures (CNNs, RNNs, LSTMs, Transformers), evaluating model performance, demonstrating superior performance of finetuning on pre-trained transformer models for maintaining musical coherence and retaining genre-specific characteristics

Projects and Activities

Automated Calf Behavior Analysis System, Research Project *Summer 2025*
BURE Fellow (CIDA Grant Recipient) · Sun Lab @ Cornell University

- Developed a calf posture classification system by extracting DINO features and training a lightweight classifier, and fine-tuned a YOLO model on a self-annotated dataset of dairy calves to support veterinary study
- Benchmarked multiple VLMs for pose and eartag recognition to identify limitations in the farm context
- Packaged the pipeline into an interactive Jupyter notebook to provide veterinary researchers with an accessible, low-barrier interface for running the code and adapting it to their study

Sisyphus Productivity App, Full-Stack Developer *Fall 2025*

- Built a full-stack AI-enforced productivity web app using Node.js, Express.js, and Claude API to verify users' task completion through photo check-ins, placing top 5 out of 40+ teams at
- Developed task-timer flows, questionnaire system, and camera integration on the frontend; connected AI-driven validation logic and automated email consequence system on the backend
- GitHub: `github.com/matthewj5/sisyphus`

Basic Coding, Co-Founder & President *August 2020 – June 2024*

- Co-founded the volunteer organization to provide free online coding classes to elementary and middle school kids during the COVID-19 pandemic and taught intro to Python, C++, and Java courses
- Guided over 300 students from PA, MA, NY, FL, NC, IN, CA, and TX to grow their interest in STEM, and received very positive comments from students and parents

TA Computer Science Courses at Conestoga HS, Teaching Assistant *Fall 2023*

- Worked with the teacher and made class materials and assignments for AP CSA
- Developed an App to help serve free groceries to low-income families in the Kensington area of Philadelphia