Runqiu Ye

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EDUCATION

Carnegie Mellon University **Expected Graduation 2027**

Bachelor of Science in Computer Science and Mathematics *Pittsburgh, Pennsylvania*

- **GPA:** 4.0/4.0
- **Computer Science Coursework:** Machine Learning, Natural Language Processing, Artificial Intelligence, Computer Systems, Parallel and Sequential Data Structures and Algorithms, Computer Graphics, Functional Programming, Theoretical Computer Science.
- **Mathematics Coursework:** Probability Theory, Honor Linear Algebra, Matrix and Vector Calculus, Honor Real Analysis, Honor Abstract Algebra, Functional Analysis, Measure Theory, Differential Geometry.

SKILLS AND AWARDS

Language/Libraries: C, C++, Python, Java, Fortran, PyTorch, TensorFlow, Mujoco, Numpy, Pandas, Matplotlib
Developer Tools: VS Code, Git, Github, Vim, Google Colab, Anaconda, Jupyter Lab
Awards: CMU Summer Undergraduate Research Fellowship, Dean List High Honors, International Young Physicists' Tournament Champion, Princeton University Physics Competition 2nd Place, 2-time AIME Qualifier and top 5% in AMC 12, Chinese Mathematics Olympiads and Chinese Physics Olympiads First Prize

EXPERIENCE

Amazon **May 2025 – August 2025**

Incoming Software Developer Intern *Seattle, Washington*

- Incoming **software developer intern** at Amazon.

Carnegie Mellon University | *Deep Learning, Reinforcement Learning* **September 2024 – Present**

Undergraduate Research Assistant in Robotics *Pittsburgh, Pennsylvania*

- Used **imitation learning** and **reinforcement learning** in loco-mujoco to build **individual-specific physics simulation** for joint torque **from vision data**. Investigate the interactions of **foot models** and **ground reaction force** to better simulate human muscles and joints.
- Researched **computer vision-based wearable robotic exoskeleton** for improving human mobility. Utilized integrated data from **motion capture**, **vision**, and **sensors** to estimate **whole-body movement and posture**, enhancing efficacy of exoskeleton control. Github link: github.com/RunqiuYe/loco-mujoco

Carnegie Mellon University | *Python, Fortran, Data Analysis, Github* **January 2024 – August 2024**

Undergraduate Research Assistant in Computational Astrophysics *Pittsburgh, Pennsylvania*

- Utilized **Python and Fortran** to develop a **high-precision numerical simulation** for evolution of binary star systems, resulting in simulation of over **1.5 million binary stars** in Pittsburgh Supercomputing Center and **deepened insights of white dwarf formation.**
- Implemented **advanced statistical analysis** with Python to simulation results to study dependency between certain evolution models and binary stars behaviors, resulting in **creation of new models** and **70% more consistent results** between different simulations.
- Received **2024 Summer Undergraduate Research Fellowship Awards**. Github link: github.com/RunqiuYe/post-MT-binaries.

Carnegie Mellon University | *Vector Calculus, Matrix Calculus* **August 2024 – Present**

Teaching Assistant *Pittsburgh, Pennsylvania*

- Taught **Calculus in 3D** and **Honor Real Analysis** and held weekly **recitations** on **real analysis, matrix calculus, linear algebra**.
- **Prepared course material** and graded students' assignments. **Resolved misunderstandings and questions** about course content.

PROJECTS

Computer System Projects | *Computer Systems, C Programming* **Fall 2024**

- Created a **dynamic memory allocator** (malloc lab), a **Linux shell** (shell lab), a **multithreaded proxy server** (proxy lab), and a **parallel file system** (sfs lab) using **system level C**, deepening **understanding of computer system and parallel programming**.

Handwritten Digits Classifier | *Deep Learning, Convolutional Neural Network* **August 2024**

- Built a **convolutional neural network** to classify grayscale handwritten digits. **Trained with 60000 images** from the MNIST dataset.
- Tested on 400 examples and **achieved 80% accuracy**. Plan to add more symbol and integrate into **equation to LaTeX translator**.

Text Editor in C | *C, Data Structures* **May 2024**

- Developed a **command-line text editor using C** from scratch, deepening understanding of **data structures and terminal operations**.
- Utilized **gap buffer** to hold text and achieve **efficient insertion and deletion**, supporting **syntax highlighting, file editing and saving, custom key bindings, and multiple open buffers**. Plan to write **my own Lisp** and develop **scripting language**.
- Github link: github.com/RunqiuYe/text-editor.