Runqiu Ye

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EDUCATION

Carnegie Mellon University **Expected Graduation 2027**
Computer Science, Mathematics *Pittsburgh, Pennsylvania*

- **GPA:** 3.97 / 4
- **Computer Science Coursework:** Machine Learning (PhD), Natural Language Processing (PhD), Probabilistic Graphical Models (PhD), Computer Systems, Parallel and Sequential Data Structures and Algorithms, 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, Colab, Anaconda, Jupyter Lab.
Awards: CMU Summer Undergraduate Research Fellowship, Dean List High Honors, Chinese Mathematics Olympiads First Prize, Chinese Physics Olympiads First Prize, International Young Physicists' Tournament Champion, Princeton University Physics Competition 2nd Place, Twice top 5% in AMC 12 and AIME qualifier.

EXPERIENCE

Amazon Web Services (AWS) **May 2025 – August 2025**
Incoming Software Developer Intern *Seattle, Washington*

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

Carnegie Mellon University | Deep Reinforcement learning, Imitation Learning **September 2024 – January 2025**
Undergraduate Research Intern 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 Intern 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 **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.

PROJECTS

Attention and Transformer | PyTorch, Deep learning, Natural language processing **Spring 2025**

- Implemented a **transformer encoder and decoder** from scratch. **Improved by using SwiGLU and different normalization**.
- Trained and tested on **sentiment analysis task using Yelp dataset**. Achieved **top-in-class 86% accuracy** on heldout test dataset.

Computer System Projects | Computer systems, C programming, Parallel 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**. Planned extension into **LaTeX symbol and equation translator**.