

# LAWRENCE FENG

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## Education

### Carnegie Mellon University

Fall 2022 – Spring 2026

*Bachelor of Science in Statistics and Machine Learning*

*Pittsburgh, Pennsylvania*

- Additional major in Artificial Intelligence and minor in Mathematics
- GPA: 3.88

## Relevant Coursework

- Introduction to Deep Learning (PhD)
- Introduction to Machine Learning (PhD)
- Probabilistic Graphical Models (PhD)
- Probability and Mathematical Statistics (PhD)
- Algorithm Design and Analysis
- Parallel and Sequential Data Structures
- Advanced Methods Data Analysis
- Monte Carlo Methods and Applications

## Experience

### Carnegie Mellon Computer Science Department

Fall 2024 – Present

*Research assistant advised by Professor Wenting Zheng*

- Investigating novel pseudorandom codes for watermarking generative AI
- Sole programmer managing all aspects: experimental design, implementation, analysis, and progress reporting
- Translating theoretical cryptographic literature into efficient implementations
- Developed watermarking attacks which expose the vulnerabilities in existing schemes

### Robotics Institute at Carnegie Mellon

Spring 2024 – Fall 2024

*SURA Summer Research Intern*

- Developed and automated experimental frameworks to evaluate multimodal, generative transformer-based robot trajectory planners, enabling efficient management of long-running experiments
- Gained expertise in navigating and contributing to complex research codebases with limited documentation

### Carnegie AI Safety Initiative

Fall 2023 – Present

*Executive team*

- Leading weekly [alignment reading groups](#) and active member of the executive team driving campus engagement

### TartanAUV

Fall 2023 – Present

*Software Engineer – Carnegie Mellon's RoboSub Team*

- Engineering and integrating classical and deep learning vision systems with controls and path planning
- Working on the fly on a small team to adapt the vehicle to competition tasks

## Projects

### [Interpretability of Vision Language Models](#) | *Python, Hugging Face, TransformerLens*

Fall 2024

- Led a project investigating vision language models using tools like Hugging Face and TransformerLens.
- Found that a language-only sparse autoencoder can provide insights into a multimodal model's black-box behavior
- Demonstrated the ability to alter model behavior predictably by intervening on intermediate activations

### [Image Reassembly using Reinforcement Learning](#) | *Python, PyTorch, Pandas, Git*

Fall 2023

- Led a team of four in designing, implementing, and testing a deep reinforcement learning system inspired by AlphaGo
- Achieved > 90% on image reassembly task through innovative model architecture and tree search integration
- Managed project timeline, code integration, and technical direction while coordinating team efforts

### [MyTorch](#) | *Python, NumPy*

Fall 2023

- Neural network library implements MLPs, CNNs, RNNs, GRUs, and reverse automatic differentiation
- Demonstrated deep understanding of ML fundamentals through rigorous implementation of core components

## Awards

### [Program on AI and Reasoning \(PAIR\)](#)

Summer 2024

- Accepted on a full scholarship to a competitive 2-week camp focusing on AI, cognition, and rationality

## Technical Skills

**Programming Languages:** Python, R, C, C++, Java, SQL, SML, L<sup>A</sup>T<sub>E</sub>X

**Developer Tools:** Google Cloud Platform, Amazon AWS, Git, WandB, VSCode, Jupyter Notebook

**Frameworks and Libraries:** PyTorch, TensorFlow, Hugging Face, OpenCV, NumPy, Pandas, Matplotlib, Seaborn, ROS