Qianyu Zheng

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EDUCATION

Georgia Institute of Technology, Atlanta, GA *August 2022 – May 2025 (Expected)*

- Candidate for Bachelor of Science in Computer Science
- Year: Junior, GPA: 4.0

Skills

- Programming Languages: Python, Java, C++, C
- Computer Science Knowledge: Machine Learning, Cloud Computing (AWS), Databases, Graph Neural Networks
- Concepts: Statistics, Linear Algebra, Combinatorics

Awards/Certifications

- AWS Certified Cloud Practitioner (CLF-C02)
- AWS Certified Machine Learning Specialty (MLS-C01)
- Faculty Honors: Dean's List from Georgia Institute of Technology in Fall 2022, Spring 2023, Fall 2023.

RESEARCH

Georgia Tech Undergraduate Research, *Researcher* *May 2023 - Present*

- Researching the applications of Graph Neural Networks (GNNs) in material science, under the guidance of **Assoc. Prof. Victor Fung** at Georgia Tech.
- Played an integral role in integrating **contrastive learning** techniques into the pretraining process of GNNs to gain performance improvements within the CGCNN model under our framework "**matdeeplearn**."
- Conducted independent investigations to evaluate and improve **force field predictions of models** by applying **physically informed Machine Learning**. Implement physical models in matdeeplearn framework and design chemically meaningful evaluation metrics for ML models.
- Developed proficiency in Graph Neural Networks (GNNs), PyTorch framework, deep learning, and research methods.

PROJECTS

Participant, **Major-League Hacking Hacklytics 2023: Data Science Hackathon** *February 2023*

- Collaborated in a 4-member team to develop "Stock Tweet," a project tailored for public relations teams to **analyze social media impact on stock prices**.
- **Trained a machine learning model** on historical tweets and stock prices with NLP tools to **predict price impact** of future tweets. The model identifies tweet content likely to positively or negatively affect prices.
- **Generated sample tweets** for companies using OpenAI's GPT-2 model based on trending topics and past social media performance.
- Presented analysis in an **interactive web application** with word clouds highlighting high-impact terms. The dashboard enables easy interpretation of model predictions.

Team Leader, **Major-League Hacking HackGT 2023** *October 2023*

- **Led** a 4-member team in developing "Plot Visualizer," a tool to **improve accessibility** of STEM graphs for learning-disabled students by transforming images into visualized data series.
- Fine-tuned a **YOLOv7 model** to detect graph elements in images and **EasyOCR** to extract plot data and text descriptions. Models perform well even with challenging tilted, blurred or noisy images.
- Built an **end-to-end pipeline** to identify graphs, extract data, and generate clean visualized data series from complex images.
- Created a **Flask/HTML web application** showcasing the pipeline and allowing students to seamlessly visualize graph images. Improves comprehension of graph trends and relationships.

ACTIVITIES

Teaching assistant, **CS 1331: Introduction to Object Oriented Programming** *January 2023 – Present*

- Collaborate within a team of 42 TAs, led by Professor Richard Landry from the College of Computing.
- Conduct weekly 75-minute recitation sessions, engaging around 50 students. Acknowledged by students for providing consistently delivering clear explanations and enhancing their comprehension and academic performance. Honed **interpersonal communication skills**.
- Work as the **forum lead** that monitors the Q&A forum to actively answer questions from students and maintain good communication environment on the forum.
- Demonstrated proficiency in providing meticulous and tailored feedback to support student growth.