

Yu MIAO

Atlanta, GA 30332 | Tel: +1-4045655403 | email: ymiao82@gatech.edu | [GitHub](#) | [LinkedIn](#)

EDUCATION

Technion, Israel Institute of Technology(GTIIT) Haifa, Israel& Shantou, China
Bachelor of Science in Mathematics with Computer Science (GPA: 95.5/100) 8/2019-7/2024

Georgia Institute of Technology(College of Computing) Atlanta, USA
Masters in Computational Science & Engineering (GPA: 4.0/4.0) 8/2024-12/2025

Coursework: Systems Programming, Data Structures, Digital Systems and Computer Structure, Advanced Algorithms, Operating Systems, Theory of Computation, Numerical Methods, Machine Learning, High-Performance Computing

WORKING EXPERIENCE

Graduate Research Assistant 11/2024-5/2025
ARTISAN(HPC) Research Team Atlanta, USA

- Developed and maintained front-end web interfaces using **VueJS** and **Django** for material science data integration.
- Extended backend infrastructure with **PostgreSQL** and **REST** web services for data extraction and ingestion, contributing to **Apache Airavata** core distributed computing software.
- Contributed to **NLP** tasks with Chemical Data Extractor for SMILES-specific data, integrating results into **HPC** applications and SMILES Data Catalog.

Software Engineer (Part-time) 1/2022-2/2023
Vitalerter Remote

- Developed a real-time sensor data platform to detect anomalies (heat, odor, dehydration) in senior patients, integrating **Fine Gaussian SVM** models and achieving **70%+ detection accuracy**.
- Built APIs in **Django** for data processing, ensuring low-latency communication between sensor hardware and cloud systems.
- Led hardware testing for odor detection using PTR-MS Viewer, automating data analysis and visualization with **Python**.

Software Engineer Intern 8/2022-9/2022
Shenzhen Aerospace Technology & Innovation Co., Ltd. Shenzhen, China

- Developed a **charity fundraising website** to promote space science education for children in remote areas.
- Developed and tested the back-end using **Flask** and integrated with a **Postman-tested RESTful API**.
- Optimized website load times through efficient database queries and front-end improvements with HTML, CSS, and JavaScript.

Lab Assistant 7/2021-9/2021
Shanghai Energy New Materials Technology Co., Ltd. Shanghai, China

- Performed capacity testing of sodium-ion battery cathode materials, using **MATLAB** for data analysis and trend identification.
- Prepared battery diaphragm substances and assembled battery using a glovebox.
- Utilized **Python** and **Excel** for data processing, visualization, and performance optimization

RESEARCH EXPERIENCE

Research work about Accelerating Abnormal-Behavior Detection in Surveillance Video 8/2023-6/2024
Advisor: Dr. Catherine A. Haddad-Zaknoon Technion, Haifa, Israel

- Applying group testing methods to accelerate inference time of **pre-trained DNN** to detect weapons in surveillance video.
- Implemented the RrSD model, and innovated a strategy based on advanced group testing models RID, RrSD, and RsSD.
- Building a local simulator with a dummy dataset and a **Qt** GUI for preliminary testing.

Research work about the generalization of Whitney Decomposition in three dimensions 3/2023-9/2023
Department of Mathematics with Computer Science, Advisor: Prof. Antti Rasila GTIIT, China

- Researched and developed a **3D Whitney Decomposition** algorithm, facilitating efficient representation of irregular geometries.
- Developed the algorithm in **Mathematica**, achieving a **20% reduction in computational time** when applied to 3D.

Publication

Comparative analysis of the effect of online education and game education on students' study
Yuan Cao, Tao Liu, Yu Miao(Co-first author), CMLAI 2023

- Contributed to Introduction, Comparison, and Conclusion sections
- Investigated effectiveness and popularity of online lectures and educational games

PROJECT EXPERIENCE

Participant of the Mastery Level Course: Advanced Mathematical Modelling (Grade:5/5) 1/2023-5/2023

- Developed advanced mathematical models, including PDEs, FEM, and stability analysis, to solve multiscale and discontinuous problems.

- Collaborated on weekly exercises, conducted peer reviews, and refined complex methodologies with teammates.
- Delivered a LaTeX report and presentation on using FEM for solving PDEs with rapidly varying coefficients, showcasing technical expertise.

Team Leader

8/2021-12/2021

X-Culture Project

Remote

- Collaborated effectively with 5 cross-cultural team members from diverse backgrounds to identify and analyze areas of opportunity for Novabrink, a Brazilian toy manufacturer facing challenges.
- Conducted market research and proposed sales strategies tailored to Novabrink's needs and goals of expanding their market reach and reversing sales downturns.

SELECTED PROJECTS

Real-Time Traffic Management System (C++, Python, AWS)

- Developed a high-throughput traffic management system, optimizing route planning using **Dijkstra's algorithm**.
- Integrated **Kafka** for real-time data streaming and **AWS Lambda** for scalable cloud deployment.
- Designed an interactive dashboard using **Plotly** for real-time traffic visualization and data insights for city officials..

Smart City Event Management Platform (C++, Flask, MongoDB)

- Built a city-scale event management system supporting **millions of user interactions** for voting, registration, and results handling using **Flask** and **MongoDB**.
- Implemented multi-threading and optimized database queries, improving response time by 30% under high load conditions.

TEACHING EXPERIENCE

Teaching Assistant

8/2022-2/2025

Algebra B& Pre-Academic Math Course& Introduction to Groups& Differential and Integral Calculus 2M& PDE/H GTIIT, China

- Graded assignments for 500+ students, offering feedback to enhance their academic performance.

Teaching Assistant

10/2020-7/2024

Differential and Integral Calculus 1M& Introduction to Computing with Python

GTIIT, China

- Conducted weekly tutorials and provided explanations for 170+ students to enhance their understanding.

ACTIVITIES & LEADERSHIP & VOLUNTARY SERVICES

Student Ambassador, GTIIT Admissions Office

2020-8/2024, GTIIT

- Led campus tours, answered questions, and shared my learning experiences with 100+ visitors.

Student Representative, 2019 MSE group, 2020 MCS group

10/2019-7/2021, GTIIT

- Collected feedback and opinions from 170+ peers, working to enhance their academic experiences.
- Participated in annual meetings with 5+ school leaders and faculty to communicate feedback and represent student interests.

Student Assistant, GTIIT Research, Innovation, and Graduate Studies Office

10/2020-7/2021, GTIIT

- Assisted with industry partner database, event organization, visitor management, and news reporting, assisted with science funding application preparation, ensuring smooth operations.

Vice Present, Model United Nations Club

2019-8/2024, GTIIT

- Organized Model UN training for 60+ members and led a team of 8 members to participate in Model UN events for promoting the development of the club.

SKILLS

Technical:

- Programming Language: C/C++, Python, JavaScript, Java, MATLAB, Mathematica, x86 assembly, HTML
- Frameworks & Libraries: TensorFlow, scikit-learn, Flask, Django, Qt
- Tools: Git, Linux (Ubuntu), Docker, PTR-MS Viewer, Valgrind, gdb
- Operating Systems: Windows, Linux
- Machine Learning: SVM, Neural Networks, k-Means, Decision Trees, Random Forests
- Quant Skills: Probability Theory, Statistical Analysis, Time Series, Numerical Optimization, Stochastic Processes

Language:

- English: Fluent (IELTS: 7.5)
- Mandarin Chinese(Native)

HONORS & AWARDS

- Dean's List (Top 15 %) 2021/2022 & 2020/2021& 2022-2023 academic year
- Second Class of Chancellor 's Scholarship(Top 15 %) 2019/2020 &2021/2022& 2020/2021 academic year
- Vice Chancellor's List (Top 5%) 2019/2020 academic year
- First Class Academic Excellent scholarship (Top 2.5%) 2019/2020 academic year