

# Yu MIAO

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

## EDUCATION

---

Technion, Israel Institute of Technology(GTIIT)	Haifa, Israel& Shantou, China
<b>Bachelor of Science in Mathematics with Computer Science(GPA: 95.5/100)</b>	8/2019-7/2024
Georgia Institute of Technology	Atlanta, USA
<b>Masters in Computational Science &amp; Engineering (College of Computing)</b>	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

---

<b>Full Stack Student Developer</b>	11/2024-5/2025
<i>ARTISAN - NSF DMREF SMILES Project</i>	
Atlanta, USA	
<ul style="list-style-type: none"><li>Developed and maintained front-end web interfaces using <b>VueJS</b> and <b>Django</b> for material science data integration.</li><li>Extended backend infrastructure with <b>PostgreSQL</b> and <b>REST</b> web services for data extraction and ingestion, contributing to <b>Apache Airavata</b> core distributed computing software.</li><li>Contributed to <b>NLP</b> tasks with Chemical Data Extractor for SMILES-specific data, integrating results into <b>HPC</b> applications and SMILES Data Catalog.</li></ul>	
<b>Software Engineer (Part-time)</b>	1/2022-2/2023
<i>Vitalerter</i>	
Remote	
<ul style="list-style-type: none"><li>Developed a real-time sensor data platform to detect anomalies (heat, odor, dehydration) in senior patients, integrating <b>Fine Gaussian SVM</b> models and achieving <b>70%+ detection accuracy</b>.</li><li>Built APIs in <b>Django</b> for data processing, ensuring low-latency communication between sensor hardware and cloud systems.</li><li>Led hardware testing for odor detection using PTR-MS Viewer, automating data analysis and visualization with <b>Python</b>.</li></ul>	
<b>Software Engineer Intern</b>	8/2022-9/2022
<i>Shenzhen Aerospace Technology &amp; Innovation Co., Ltd.</i>	
Shenzhen, China	
<ul style="list-style-type: none"><li>Developed a <b>charity fundraising website</b> to promote space science education for children in remote areas.</li><li>Developed and tested the back-end using <b>Flask</b> and integrated with a <b>Postman-tested RESTful API</b>.</li><li>Optimized website load times through efficient database queries and front-end improvements with HTML, CSS, and JavaScript.</li></ul>	
<b>Lab Assistant</b>	7/2021-9/2021
<i>Shanghai Energy New Materials Technology Co., Ltd.</i>	
Shanghai, China	
<ul style="list-style-type: none"><li>Performed capacity testing of sodium-ion battery cathode materials, using <b>MATLAB</b> for data analysis and trend identification.</li><li>Prepared battery diaphragm substances and assembled battery using a glovebox.</li><li>Utilized <b>Python</b> and <b>Excel</b> for data processing, visualization, and performance optimization</li></ul>	

## RESEARCH EXPERIENCE

---

<b>Research work about Accelerating Abnormal-Behavior Detection in Surveillance Video</b>	8/2023-6/2024
Advisor: Dr. Catherine A. Haddad-Zaknoon	
Technion, Haifa, Israel	
<ul style="list-style-type: none"><li>Applying group testing methods to accelerate inference time of <b>pre-trained DNN</b> to detect weapons in surveillance video.</li><li>Implemented the RrSD model, and innovated a strategy based on advanced group testing models RID, RrSD, and RsSD.</li><li>Building a local simulator with a dummy dataset and a <b>Qt</b> GUI for preliminary testing.</li></ul>	
<b>Research work about the generalization of Whitney Decomposition in three dimensions</b>	3/2023-9/2023
Department of Mathematics with Computer Science, Advisor: Prof. Antti Rasila	
GTIIT, China	
<ul style="list-style-type: none"><li>Researched and developed a <b>3D Whitney Decomposition</b> algorithm, facilitating efficient representation of irregular geometries.</li><li>Developed the algorithm in <b>Mathematica</b>, achieving a <b>20% reduction in computational time</b> when applied to 3D.</li></ul>	

## 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

---

<b>Participant of AI and Education Seminar</b>	7/2022-9/2022
Department of Robotics Institute at Carnegie Mellon University, Advisor: Prof. Jack Mostow	
Remote	
<ul style="list-style-type: none"><li>Collaborated with 2 students to design a language tutoring system evaluating the impact of cooperation on language learning while comparing the pros and cons of different interventions.</li><li>Authored a comprehensive report on our findings and delivered a PowerPoint presentation to the course mentor and peers.</li></ul>	

- Participated in weekly lectures, summarized readings, and regularly met with the course mentor and TAs to discuss the lecture material and develop research skills.

#### 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, 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 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%, rank 2/107) 2019/2020 academic year