# Yifan (Tony) Ju

Contact: +1 647-289-6812
Email: yifan.ju@mail.utoronto.ca
Github: https://github.com/YifanTonyJu
Address: 1207-10 Meadowglen Pl, Toronto, ON, M1G 0A8

## EDUCATION

**University of Toronto Scarborough (UTSC)** September 2023 - July 2027
*Honours Bachelor of Science in Computer Science Specialist (Comprehensive Stream)*

- Current GPA: 3.80/4.0
- Relevant Coursework: Data Structures & Algorithms, Systems Programming (Linux), Numerical Algorithms, Programming Languages, Computer Organization, Probability, Machine Learning, Software Engineering, Computation Theory
- Award & Honors: Dean's List Fall 2024, Fall 2025

## RESEARCH INTERESTS

Human–Computer Interaction (HCI)
Cognitive Science and Large Language Models
Numerical Methods
Robotics
Deep Learning
Software Engineering
Programming Languages
Computation Theory

## TECHNICAL PROJECTS

**File Management System (Full Stack)** May 12 - July 4, 2025; 20 Hrs/Wk
*Independent Developer*

- Developed a full-stack file management system in C++ using the OATPP framework and RESTful HTTP APIs, developed and managed the application remotely over SSH on Linux systems to ensure compatibility with the Linux OS, built a responsive frontend using Vue.js for intuitive file browsing and management, maintained a clear separation between front-end and back-end components for modularity and scalability
- Technologies used included C++, OATPP, Vue.js, REST API, HTTP

**MyMonitoringTool – Linux System Monitoring Tool** March 28 - April 7, 2025; 25 Hrs/Wk
*Independent Developer; Course Mentor: Professor Marcelo Ponce*

- Developed a concurrent Linux system monitoring tool in C to collect CPU, memory, and file descriptor usage, used fork, pipe, and signal handling (Ctrl-C, Ctrl-Z) to coordinate multiple monitoring modules with robust process control, parsed the /proc filesystem and reconstructed a process-level file descriptor table using getrlimit and getrusage, implemented an ANSI-based real-time CLI with periodic refresh, emphasized consistent output format and error handling, earned full mark in this project
- Technologies used included C, Linux, fork, pipe, Signal Handling, Systems Programming

**Jumper Game** March 10 - April 7, 2025; 16 Hrs/Wk
*Independent Developer; Course Mentor: Professor Nandita Vijaykumar*

- Developed a full-featured 2D platform game in MIPS assembly, incorporating rendering, player input, collision detection, and scoring systems, implemented sprite rendering and physics-based movement for smooth gameplay on low-level architecture, optimized assembly code for performance and memory efficiency, designed the game loop and user interface elements to deliver an engaging player experience, earned full mark in this project
- Technologies used included Assembly, MIPS architecture

**Carbon Footprint Calculation App** November 1 - December 3, 2024; 18 Hrs/Wk
*Group Project; Course Mentor: Professor Rawad Abou Assi*

- Designed and implemented an Android application to estimate users' carbon footprint based on daily activities using an Agile, iterative development approach, built core UI flows and application logic in Java following Material Design guidelines, with clear separation of concerns and modular design aligned with SOLID principles, integrated Firebase Authentication for secure user login and Firebase Realtime Database for reliable data storage and real-time synchronization, implemented carbon footprint calculation logic based on transportation and energy consumption inputs, earned A- in this course
- Technologies used included Java, Android, Firebase, Material Design, Mobile Development

## LEADERSHIP & COMMUNITY SERVICE

**UTSC String Orchestra** 2023 - Present
*Violinist*

- Performed as a violinist in the campus string orchestra, participated in sectional rehearsals twice per semester, crafted technical documentations for string techniques, contributed to the preparation of orchestral repertoire by independently studying string techniques and assisting peers during sectional rehearsals
- Engaged in community outreach performances at local senior care facilities, brought classical music to elderly audiences and fostered intergenerational connection, participated in end-of-term public concerts

**UTSC MTA F1 Race Outcome Prediction** October 23 - October 25, 2024
*Coordinator; Group Leader*

- Assigned tasks for other 3 group members, participated in the MTA Data Analysis Competition to predict Formula 1 race outcomes using historical data, cleaned and analyzed race datasets with pandas and NumPy, handled missing values and performance statistics, performed feature engineering and built predictive models with NumPy for race outcome estimation, presented analysis and prediction results through Matplotlib

## SKILLS

Programming: Python, C, C++, Java, Haskell, JavaScript, Shell Script, MIPS Assembly, Racket
Frameworks & Platforms: PyTorch, OATPP, Vue.js, Vite, Android SDK
Data & Visualization Libraries: Pandas, NumPy, Matplotlib, Plotly
Databases: MySQL, MySQL Workbench
Systems & Tools: Linux, Git, GitHub, CMake, Makefile, VS Code, Remote SSH, JIRA, Markdown, LaTeX
Machine Learning: Machine Learning, Deep Learning, Transformers, Model Training & Evaluation, Data Analysis