Yutong Zhou

https://yvtungchou.github.io/

Education

University of Michigan **Ann Arbor**

*Bachelor of Science in **Computer Science and Mathematics*** *Sept 2022-May 2026*

- Total GPA: 4.00/4.00
- Awards/Honors: M.S. Keeler Department of Mathematics Merit Scholarships, James B. Angell Scholar, University Honor.

Coursework: Data Structure & Algorithms (A+), Linear Algebra (A+), Numerical Analysis (A), Mathematical Analysis (A+), Differential Equation (A+), Probability (A+), Abstract Algebra(A), Computer Organization (A), Computer Theory (A+), Machine Learning(A+), Independent Study(A), Algorithm Robotics(A), Operating System with Advanced Projects(A), Nonlinear Dynamics and Complex System(A+).

Southwest Jiaotong University **Chengdu, Sichuan, China**

Bachelor of science in Engineering Mechanics (Training program of Top class in Mechanics) *Sept 2020-July 2022*

- Total GPA: 3.82/4.00 Major GPA: 3.91/4.00
- Awards/Honors: Rank 1st in School of Mechanics and Aerospace Engineering (Major Course Ranking).
- Transferred to University of Michigan.

Experience

ROAHM Robotics LAB **Ann Arbor**

Undergraduate Researcher *Sept 2024 – present*

BLAZE: Rapid Motion Planning with the AGHF PDE for Arbitrary Objective Functions and Constraints

- The work accommodates arbitrary cost functions, significantly expanding the classes of trajectories that can be generated. This work also introduces a Phase1 - Phase2 Algorithm that enables the use of constraint-violating initial guesses while guaranteeing satisfactory convergence.
- BLAZE can generate trajectories for high-dimensional robotic systems under multiple constraints, with constraint violating initial guesses faster than state-of-the-art trajectory optimization methods. More information will be disclosed on my personal website.

University of Michigan, Math Lab **Ann Arbor**

Math Tutor & Manager *Jan 2023-Oct 2024*

- Holding walk-in tutoring for mathematic courses range from precalculus, calculus, advanced calculus, linear algebra, differential equation to probability. Instructed 300+ undergraduates in University of Michigan.

Projects

Convex Optimization Solver

- Designed Phase1-Phase2 mechanism to allow for infeasible initial guess.
- Designed linear and exponential pusher to push an infeasible point into the feasible domain.
- Implemented Barrier Method to prevent the solution from escaping feasible domain.

Operating System with Advanced Projects

- Implemented a thread library that support multiple CPUs. Using atomic features provided by the hardware, the threads access shared resources in FIFO order.
- Designed and implemented a pager, the part of the OS kernel that manages application processes' virtual address spaces. It manages resources on behalf of applications, report segmentation fault when necessary.
- Implemented a multi-threaded network file server. Clients that use the file server will interact via network messages. By building this substantial multi-threaded program with fine-grained locking, I understood hierarchical file systems, socket programming, client-server systems, and network protocols.

Frontend Backend Instagram Clone

- Build an Instagram application using client-side dynamic pages and REST API. The application runs on the browser. It includes features like login, logout, creating, updating, and deleting users, posts, comments, and likes.
- Implement an SQLite database.

Technical Skills

Programming languages/Tools: C, C++, Git, Python, MATLAB, PyTorch, JavaScript, AJAX, HTML, REST APIs, CSS, Latex, Socket.

Languages: Chinese, English, Japanese