# ZHENG LI

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## RESEARCH INTERESTS

Computer Networks, Mobile Systems, Machine Learning and Human Computer Interaction.

## EDUCATION

**University of Michigan**, Ann Arbor, MI — Expected May 2024
B.S.E. Computer Science (Dual Degree) — Cumulative GPA: 3.96/4.00

**Shanghai Jiao Tong University**, Shanghai, China — Expected August 2024
B.S.E. Electrical and Computer Engineering (Dual Degree) — Cumulative GPA: 3.83/4.00

## PUBLICATIONS

Xuechen Zhang* and **Zheng Li*** (*: co-primary), Samet Oymak, Jiasi Chen. "Text-to-3D Generative AI on Mobile Devices: Measurements and Optimizations" *ACM SIGCOMM Workshop on Emerging Multimedia Systems*, 2023.

**Zheng Li**, Caiwei Chen, and Pradeep Kumar Ray. "Robotics for Autism- Robotic Technologies for ASD Treatment." *Asian Hospital & Healthcare Management*, ISSUE 57, 2022.

## PRESENTATIONS

**ACM SIGCOMM Workshop on Emerging Multimedia Systems**, New York, NY — September 2023
Text-to-3D Generative AI on Mobile Devices: Measurements and Optimizations (oral)

## RESEARCH EXPERIENCE

**Research Assistant in SOTA Lab** — May 2023 - Present
University of Michigan, Supervisor: Jiasi Chen, Samet Oymak — *Ann Arbor, MI*

- Published a paper in ACM SIGCOMM Workshop on Emerging Multimedia Systems (EMS).
- Research work won one of the two Wang Chu Chien-Wen Research Award in 2023.
- Evaluated model performance (including latency, memory usage, Quality of Experience etc.) of different Text-to-3D generative AIs on server GPUs and mobile GPUs.
- Designed system structure and pipelines for distributed Text-to-3D generation.
- Analyzed the inefficiency of different 3D generative models and their corresponding optimization strategies in the context of mobile systems.
- Designed ranking algorithms for 3D gaussians to optimize 3D streaming efficiency.
- Implemented viewport dependent 3D streaming based on 3D gaussian ranking algorithms.
- Measured and compared 3D streaming visual quality of different 3D gaussian ranking algorithm designs using PSNR and SSIM.

**Research Assistant in RobustNet Lab** — January 2023 - Present
University of Michigan, Supervisor: Z. Morley Mao, IEEE Fellow — *Ann Arbor, MI*

- Developed a customized network performance measurement system for Starlink that can measure basic network performance parameters including round trip time, throughput etc.
- Implemented handover recognition algorithms for Low Earth Orbit satellites (LEO) handover problems based on network measurements (e.g. round trip time, loss and throughput).
- Predicted satellite handover events based on Satellite trajectory prediction using Kalman filter.
- Developed Multipath TCP simulation shell for LEO network simulation based on open source software Mahimahi.
- Reviewed current literatures about network system design of LEO.

**Student Assistant of JI Centre For Entrepreneurship** July 2021 - August 2022
Shanghai Jiao Tong University, Supervisor: Pradeep Kumar Ray *Shanghai, China*

- Constructed a low-cost autism diagnosis system using eye-tracking technologies based on computer vision.
- Reviewed current robotic technologies used in autism diagnosis and treatment and published a paper on AHHM.

## PROFESSIONAL SERVICE

**Teaching Assistant of Honor Physics (VP160)** May 2022 - August 2022
Shanghai Jiao Tong University, Supervisor: Mateusz Krzyzosiak *Shanghai, China*

- Hosted weekly recitation classes, office hours, graded weekly assignments and designed problems for exams.
- Awarded Excellent Teaching Assistant Award (10 recipients each year).

**Software Engineer Intern** December 2021 - March 2022
TURINGO *Shanghai, China*

- Implemented testing programs for the laser routing programs.
- Designed storage pipelines for light storage chips based on Reed–Solomon-codes and quantum encryption.

## SELECTED PROJECTS

**MiProxy**

- Built a Proxy that can handle video streaming requirements between multiple clients and servers.
- Implemented adaptive bitrate selections for video streaming to minimize buffering and improve user experience.
- Realized DNS load balancing through round-robin and distance based server selection using Dijkstra algorithm.

**Distributed Searching Engine**

- Created segmented inverted indexes of web pages using a pipeline of MapReduce programs.
- Developed a distributed MapReduce framework with strong fault tolerance to process large-scale web data.
- Utilized Flask framework to implement the backend server in order to generate highly customized recommendations via PageRank Algorithm and query vector similarity comparison.
- Built a scalable search engine with a user interface that returns search results like Google or Bing.

## HONOR & AWARDS

ACM SIGCOMM Travel Grant 2023
McLane Family Scholarship, *UMich* 2023
Roger King Scholarship, *UMich* 2023
The Jackson and Muriel Lum Scholarship (5 recipients each year), *UMich* 2022, 2023
Wang Chu Chien-Wen Research Award (2 recipients in 2023), *UMich* 2023
University Honors & College of Engineering Dean's Honor List, *UMich* Fall 2022, Winter 2023
JI Excellent Teaching Assistant Award (10 recipients each year), *SJTU* 2023
SJTU Undergraduate Excellent Scholarship Class A (top 2 %), *SJTU* 2022
The 2021 University Physics Competition Bronze Medal Winner 2022
The John Wu & Jane Sun Sunshine Scholarship, *SJTU* 2021
UM-SJTU Joint Institute Student Development Scholarship, *SJTU* 2021

## SELECTED COURSES

Computer Networks, Web System, Operating System, Parallel Computing, Machine Learning, Computer Security

## SKILLS

**Computer:** C++, C, Python, CUDA, Pytorch, SQL, HTML, Linux, MATLAB, JavaScript, Verilog, LaTeX
**Language:** Bilingual in Chinese and English