

Meng-Jung (Chloe) Tsai

☎ 310-721-4239 | ✉ mjtsai@cs.ucla.edu | 🏠 <https://mjtsai.net>
🌐 www.linkedin.com/in/meng-jung-tsai

EDUCATION

University of California, Los Angeles, CA, USA Jun. 2023 (Expected)
Ph.D. in Computer Science (GPA: 3.78/4.0)
• Advisor: Leonard Kleinrock
• Research Topic: Computer Networks and Systems, Congestion Control, Queueing Disciplines, Queueing Systems
National Chiao Tung University, Hsinchu, Taiwan Jun. 2018
B.S. in Computer Science (GPA: 3.95/4.0)
• Courses: Network Programming, Hardware-Software Co-Design, Algorithms, Data Structures, Wireless Network

WORK EXPERIENCE

Google LLC, Sunnyvale, CA, USA Jun. 2021 – Sep. 2021
Software Engineer Intern @ Borg Team
• Analyzed the effects on **resource allocation** under the cases with and without considering **historical allocation**
• Designed a metric to evaluate the **fairness** for throughput-oriented workloads
• Proposed a multi-resource allocation algorithm regarding the past resource assignment
• Built a simulator of the admission control process in the **cluster management** system Borg for evaluation
Cisco Meraki, San Francisco, CA, USA Jun. 2020 – Sep. 2020
Software Engineer Intern @ MX Routing Team
• Developed an analysis framework to examine potential bugs causing different **routing** results between two systems
• Automated the fetching process to periodically get the system reports from 50,000 clients' routers in **Scala**
• Reduced 38% of storage by identifying and removing difference routes due to known bugs from the system report
• Discovered 4 new bugs in the upcoming system with the proposed analysis framework

RESEARCH EXPERIENCE

University of California Los Angeles, CA, USA Sep. 2018 – Present
Graduate Student Researcher @ Connection Lab
• Proving characteristics of the Power metric for **congestion control** and testing with **MATLAB** and **Python**
• Exploring the operating point with maximal throughput and minimum delay under different **queueing disciplines**
• Studying the interactions of multiple flows in stochastic networks and the relationship with **fairness**
• Analyzing **TCP BBR** congestion control algorithm on Google Cloud Platform with **NS3**, **iperf**, and **Mahimahi**
• Investigating the **QoE** impact of different **ABR** algorithms over multiple TCP congestion control in **DASH**

PROJECTS

Dropbox like Cloud Drive
• Built an interactive server providing independent cloud storage service for multiple clients in **C** and **C++**
• Increased throughput and QoE with non-blocking socket programming by using **Linux systems call**
• Emulated the events of packet loss and re-ordering with traffic control tool **iproute2** to test the reliability
Acceleration of Full Search Algorithm for Motion Estimation
• Profiled the motion estimation program with **gprof** and real-time timer to find the bottleneck of the program
• Decreased 94% computation time by revising the implementation with consideration of the device architecture in **C**
• Achieved more than 260 times speedup by implementing hardware circuits designs in **Verilog** on **FPGA**
Analysis of a Network with Batfish
• Verified the SNMP hosts are reachable from all routers by searching the SNMP flows with reachability constraints
• Changed configuration in the data plane by adding **ACL** to stop SNMP services in certain ASes
• Detected **forwarding loops** and fixed it by changing the configurations of community in the **control plane**

AWARDS

The Women Enhancing Technology Qualcomm Global Scholars Program, 2017
• Only 16 female students in Taiwan were awarded \$2,500 scholarship and 6-month mentorship
Presidential Award, 2014
• Students within top 5%