

# Shengze (William) Wang

Computer Science Doctoral Student, actively seeking internship in R&D, Software Engineer

Homepage: <https://shengze.io>

Email: [shengze@ucsc.edu](mailto:shengze@ucsc.edu)

## TECHNICAL SKILLS

---

- **Academic:** Computer Networks & Distributed Systems and their applications in AI Infrastructure (Systems for AI), AI for Systems & DB, Datacenter Networks, Stream Processing, Edge Computing, Connected Autonomous Vehicles
- **Languages & Databases:** C/C++, Rust, Python, Bash, Coq, Redis, LevelDB, Cassandra, DynamoDB, Oracle, MySQL
- **Platforms & Tools:** Linux, Network Operating Systems, ROS, Supercomputers (TACC), AWS, Azure, GCP, Docker, Git
- **Highlights:** Advanced Network Protocols, Workload Characterization & Balancing, Network Analysis & Simulation, Software-Defined Networking (SDN), Programmable Switches, Hashing Algorithms, Edge-Cloud Systems, Vehicle Computing

## EDUCATION

---

- **University of California, Santa Cruz (UCSC)** San Francisco Bay Area  
• *Ph.D. in Computer Science and Engineering; Regents Fellowship; BE Dean's Fellowship* 2023 - present  
*Relevant Courses:* Adv Computer Networks, Adv Distributed Systems, Adv Machin Learning, Adv NLP, Adv Artificial Intelligence
- **University of North Texas (UNT)** Dallas - Fort Worth  
• *B.S. in Computer Science; GPA: 4.0; Outstanding Award (Top 1 of Class 2023); President's List* 2020 - 2023  
*Relevant Courses:* Algorithms, Machine Learning, Software Engineering, Systems Programming, Database Systems, Computer Networks, Computer Security, Operating Systems, Probability Models, Linear Algebra, IT Project Management, Technical Writing
- **King's College London (KCL)** London, United Kingdom  
• *Visiting Student in Computer Science; Scored: 95/100; JEISE Government Scholarship* 2019

## WORKING EXPERIENCE

---

- **Graduate Student Researcher** Baskin School of Engineering, UCSC June. 2023 - present
- **NSF REU Research Mentor** The VEC Lab, NSF eCAT Center Jun. 2022 - Aug. 2022
- **Research Assistant** Department of Computer Science and Engineering, UNT Dec. 2021 - May. 2023
- **Full-stack Web Engineer** DS Creative Office, UNT Sept. 2021 - Jan. 2022

## SELECTED PROJECTS

---

- **Resource Storage and Discovery in Network and Database Systems — C/C++, Rust** 2023 - present  
*Dr. Chen Qian's Research Group, <https://users.soe.ucsc.edu/~qian/>*
  - Investigate fundamental problems in emerging networks, e.g., Data Center Networks, CDN, Quantum Networks
  - Design and optimize network protocols, routing algorithms, hash functions, and load balancers for Enterprise Infrastructures, e.g., Network Switches, HPC Clusters, IoT
  - Implement and evaluate Network and Database Systems in event-driven simulators, server clusters, and Clouds.
- **Vehicular Edge Computing and Connected Autonomous Vehicles — Python, ROS** 2021 - 2023  
*NSF eCAT Center for Electric, Connected and Autonomous Technologies, <https://www.ecat.center/>*
  - Profiled the hardware resource utilization of real-time detectors such as Yolo, Faster R-CNN, and SSD.
  - Assessed variations such as quantization, architectural reduction, and floating point precision reduction.
  - Characterized memory contention into three behaviors and quantified the impacts of memory contention for CAVs.
  - Engineered features and modeled the workload behavior for the Edge based on the device configurations.
  - Implemented and tested the Vehicle-to-edge (V2X) communication solutions on edge nodes with AWS Edge Services.
- **False Discovery Rates(FDR) Control in Metaproteomics Search — C++, Python** 2021 - 2023  
*Center for Computational Epidemiology and Response Analysis (CeCERA), <https://cerl.unt.edu/>*
  - Applied computational methodologies and probability models to address FDR estimation bias in metaproteomics studies.
  - Developed the first fine-grained FDR assessment framework with an open-source tool FineFDR to filter the Comet and Percolator results in different taxonomic ranks. (<https://github.com/Biocomputing-Research-Group/FDR>)
  - Proposed Expectation-maximization General-mixture model for clustering proteomic samples based on abundances.
  - Evaluated six FDR control solutions on 10 datasets. Our novel fine-grained frameworks achieved higher precision, and more peptide and protein identifications compared to state-of-the-art methods such as Comet, Percolator, and Tailor.
- **Fatigue Detection for Medical Staffs:** Constructed a face-masked data set and trained the CNN model for face-masked facial landmarks detection and the LSTM network to measure PERCLOS. (Registered patent: CN-2020SR1233854)
- **DeepEmo.tech:** A real-time facial expression recognition WebApp using Tiny Face Detector and SSD Mobilenet.
- **Intelligent Traffic Management System:** Designed an effective traffic signal control solution for traffic congestion control in smart cities using Reinforcement Learning and Computer Vision. (Registered patent: CN-2020SR1235776)

## SELECTED PUBLICATIONS

---

- **Perception Workload Characterization and Prediction on the Vehicular Edges** July. 2023  
*2023 IEEE International Conference on Edge Computing (EDGE)* Co-First Author
- **Fine-grained Taxonomy-specific False Discovery Rates Control in Metaproteomics** Nov. 2022  
*2022 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)* First Author & Oral
- **Applications of Computer Vision Techniques in Industrial Fields: A Review** Apr. 2021  
*Journal of Network Security Technology & Application, 2021 (04), ISSN 1009-6833* First Author