YUNING CHEN

(209)3161359 ⋄ ychen372@ucmerced.edu ⋄ ycucm.github.io ⋄ ca.linkedin.com/in/yuning-chen-a02554159

EDUCATION

University of California, Merced Aug. 2021 - present
Ph.D. Student; Working as Graduate Research Assistant and Teaching Assistant *Merced, CA, USA*

Tsinghua University Aug. 2017 - Jun. 2021
B.Eng. in Software Engineering; Excellent Bachelor Graduate(10%); *Beijing, China*

PROFESSIONAL EXPERIENCE

Research Intern @ Alibaba Cloud U.S. May. 2023 - Aug.2023
Keywords: IP Anycast, Cloud-native, Large Language Model(LLM). *Sunnyvale, CA*

Software Engineer Intern @ Bytedance(TikTok) May. 2024 - Aug.2024
Keywords: Network engineering, Machine learning for networking. *San Jose, CA*

PUBLICATIONS

(* denotes equal contribution)

Yuning Chen, Kang Yang, Zhiyu An, Brady Holder, Luke Paloutzian, Khaled Bali, Wan Du. **MARLP: Time-series Forecasting Control for Agricultural Managed Aquifer Recharge.** under submission to ACM SIGKDD 2024 (Notification: May 16th, with high review merit: 4,4,3,4/5).

Yifei Xu*, Yuning Chen*, Xumiao Zhang*, Xianshang Lin, Pan Hu, Yunfei Ma, Songwu Lu, Wan Du, Z. Morley Mao, Dennis Cai, and Ennan Zhai. **CloudEval-YAML: A Practical Benchmark for Cloud Configuration Generation.** MLSys 2024.

Kang Yang, Yuning Chen, and Wan Du. **OrchLoc: In-Orchard Localization via a Single LoRa Gateway and Generative Diffusion Model-based Fingerprinting.** ACM Mobisys 2024.

Kang Yang*, Yuning Chen*, Xuanren Chen, and Wan Du. **Link Quality Modeling for LoRa Networks in Orchards.** ACM/IEEE IPSN 2023.

Yifei Xu*, Yuning Chen*, Xumiao Zhang*, Xianshang Lin, Pan Hu, Yunfei Ma, Songwu Lu, Wan Du, Z. Morley Mao, Ennan Zhai, and Dennis Cai. **CloudEval-YAML: A Realistic and Scalable Benchmark for Cloud Configuration Generation.** Machine Learning for Systems Workshop, NeurIPS 2023.

Zhizhang Hu*, Shangjie Du*, Yuning Chen, Xuan Zhang, Wan Du, Asa Bradman, Shijia Pan. **Poster: Enhancing Fault Resilience of Air Quality Monitoring in San Joaquin Valley: A Data Equity Analysis.** ACM SenSys 2023.

RECENT PROJECTS

Long-term Predictive Control for Sustainable Agriculture Jan. 2023 - Feb.2024
Graduate Research Assistant, Advisor: Prof. Wan Du, University of California, Merced

- Formulated the agricultural managed aquifer recharge (Ag-MAR) as a long-term predictive control problem, and designed an MPC workflow with a heuristic planning scheme to enhance the efficiency.
- Introduced a long-term time-series forecasting model based on the iTransformer architecture, featuring a causal module that leverages external predictive inputs to enhance the forecasting.

A Scalable Benchmark for Cloud Configuration Generation May. 2023 - Aug.2023
Research Intern, Advisor: Dr. Pan Hu, Dr. Yunfei Ma, Alibaba Cloud U.S.

- Proposed a benchmark with the first hand-written dataset with 1011 practical problems for cloud-scale applications. Designed a scalable, automated evaluation platform consisting of a computing cluster to evaluate the generated code efficiently for various performance metrics.

· Presented an in-depth performance evaluation of 13 LLMs in the context of cloud configuration generation, as well as effective methods to improve task performance and reduce cost.

IP Anycast Catchment Optimization based on AS-Path Prepending May. 2023 - Aug.2023
Research Intern, Advisor: Dr. Pan Hu, Dr. Yunfei Ma, Alibaba Cloud U.S.

· Identified causes of catchment inefficiency in IP anycast related to ASPP settings in large-scale network measurements on a testbed with over 1,000,000 IPs and 39 transits globally.
· Proposed a practical and interpretable workflow to optimize catchment efficiency based on iterative topology discovery with high efficiency with a minimal number of steps.

PREVIOUS PROJECTS

Link Quality Modeling for LoRa Networks in Smart Orchards. Aug. 2022 - Dec.2022
Graduate Research Assistant, Advisor: Prof. Wan Du, University of California, Merced

· Assesed the propagation modeling problem of wireless LoRa signals in smart orchard applications and explained the root drawback of existing path loss models.
· Proposed an interpretable propagation model for LoRa networks in orchards which leverages the first Fresnel zone theory to model the shadowing effect. Performance proved by extensive in-field experiments.

Application-layer optimization for Video Streaming over Multipath Sep. 2021 - Jul.2022
Graduate Research Assistant, Advisor: Prof. Wan Du, University of California, Merced

· Implemented MPTCP on Linux and AWS EC2 for WiFi and cellular collaborative transmission, evaluating QoE across various transport and application-layer bitrate techniques.
· Proposed a DNN-based approach for extracting multi-layer features to improve transmission time predictions, enhancing bitrate selection strategy and QoE.

Low-Latency Real-Time Video Streaming with WebRTC Jun. 2020 - Jan. 2021
Undergraduate Research Assistant, Advisor: Prof. Mo Li, Nanyang Technological University

· Built a live video streaming platform based on peer-peer connection, aiming to simulate and evaluate the real performance of WebRTC streaming, including signaling design and implementation.
· Implemented the Selective Forwarding Unit, a media server based on Janus to simulate the SOTA real-time video conference app; provided support for both PC and Android.

SERVICES

Reviewer	ACM SenSys'23 Poster&Demo, ACM TOSN, IEEE TMC
Artifact Evaluation Committee	ACM MobiCom'24, ACM MobiSys'24
Volunteer	ACM/IEEE CPS-IoT Week 2023

TECHNICAL SKILLS

Languages	Python, C++, C, Javascript, Java, LaTex, SQL, Golang, Matlab
Technologies	Pytorch, Git, Linux, WebRTC, FFMPEG, Wireshark, NS-3, Prompt engineering

HONORS AND AWARDS

· ACM SIGBED student travel award (for ACM/IEEE CPS-IoT Week), 2023
· ACM CoNEXT travel grant, 2021
· Excellent Bachelor Graduate, Tsinghua University, 2021
· First Prize, Student Research Training (SRT), Tsinghua University, 2019
· Outstanding Winner in the 7th Creative Competition · Junction X Tsinghua Hackathon, 2018
· Scholarships Indicating Comprehensive Excellence, Tsinghua University, 2018, 2019, 2020
· Bobcat Fellowship, University of California, Merced, 2022