YUNING CHEN

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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: Cloud-native, Large Language Model(LLM), IP Anycast. — Sunnyvale, CA

PUBLICATIONS

(* denotes equal contribution)

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

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

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

Yifei Xu*, <u>Yuning Chen</u>*, 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*, <u>Yuning Chen</u>, 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

(Each accompanied by a full paper submitted to top-tier system conferences, with my contribution as first or co-first author.)

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 that includes 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 evaluation of 12 LLMs with the benchmark, leading to a deeper understanding of the performance of LLMs in the context of cloud configuration, 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.

· Identifed causes of catchment inefficiency in IP anycast related to ASPP settings in a large scale MTR 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.

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

· Introduced a new time-series forecasting model based on the iTransformer architecture, featuring modular designs that leverage external predictive input and capture periodic patterns in data sequences.
· Formulated agricultural managed aquifer recharge (AgMAR) as a long-term predictive control problem, designed an MPC workflow with a heuristic planning scheme to enhance the efficiency.

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
Artifact Evaluation Committee	ACM MobiCom'24, ACM MobiSys'24
Volunteer	ACM/IEEE CPS-IoT Week 2023

TECHNICAL SKILLS

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

HONORS AND AWARDS

Awards

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

Scholarships

· Scholarships Indicating Comprehensive Excellence, Tsinghua University, 2018, 2019, 2020
· Bobcat Fellowship, University of California Merced, 2022