Yuan-Yao (Mike) Lou

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PROFESSIONAL SUMMARY

Current Ph.D. student at Purdue University, focusing on **containerized (Kubernetes-based) architecture design of open edge platform in 5G/6G networks** and experienced in **microservice-based system automation** in on-premise server and **web application development on AWS**.

RESEARCH INTEREST

Edge Computing   Wireless Networks and Systems (5G/6G)   Internet of Things (IoT)   Software-Defined Network (SDN)   Network Function Virtualization (NFV)   Service Function Chaining (SFC)   Deep Learning   Reinforcement Learning

EDUCATION

Purdue University   ⦿ West Lafayette, IN
Ph.D. student in Electrical and Computer Engineering   Aug. 2021 – Present
– Advisor: Prof. Mung Chiang and Prof. Kwang Taik Kim
– Coursework: Computer Network Systems, Deep Learning

National Taiwan University   ⦿ Taipei, Taiwan
M.S. in Computer Science | GPA: 3.8 / 4.0   Sep. 2015 – Jun. 2017
– Advisor: Prof. Ai-Chun Pang
– Thesis: Fog-based Virtualization for Low-Latency Wearable Services

National Chiao Tung University   ⦿ Hsinchu, Taiwan
B.S. in Computer Science | GPA: 3.8 / 4.0   Sep. 2011 – Jun. 2015

PUBLICATIONS

Journal Paper

– X.-L. Wang, M.-J. Sheng, **Y.-Y. Lou**, and M. Chiang, "Internet of Things Session Management Over LTE — Balancing Signal Load, Power, and Delay," in **IEEE Internet of Things Journal**, vol. 3, no. 3, pp. 339-353, June 2016 [Paper]

Conference Paper

– S. B. Weinstein, **Y.-Y. Lou**, and T. R. Hsing, "Intelligent Network Edge with Distributed SDN for the Future 6G Network," in **IEEE COMCAS**, 2021 [Paper]
– H.-P. Lin, Y.-Y. Shih, A.-C. Pang, and **Y.-Y. Lou**, "A Virtual Local-hub Solution with Function Module Sharing for Wearable Devices," in **ACM MSWiM**, 2016 [Paper]

Book Chapter

– Y.-Y. Shih, A.-C. Pang, and **Y.-Y. Lou**, "Chapter 13 - Development of Wearable Services with Edge Devices," in **Fog and Fogonomics**, Wiley Telecom, 2020 [Paper]

RESEARCH EXPERIENCE

Purdue University   ⦿ West Lafayette, IN
Graduate Research Assistant   Aug. 2021 – Present
– Researched on open edge platform with SDN and NFV about open interfaces to enable architecture disaggregation
– Explored joint optimization of 5G RAN (PHY/MAC) performance with open edge architecture through data analytic
– Studied Service Function Chaining across microservice-based network functions to improve network programmability

Independent Researcher
Collaborator: Prof. T. Russell Hsing and Prof. Stephen B. Weinstein
♦ Remote
Dec. 2020 – Aug. 2021

– Investigated distributed SDN coupled with edge computing and data storage to support vehicular networks
– Served as speaker in Edge and Fog Computing track on IEEE 7th World Forum on Internet of Things [Link]

Ministry of Science and Technology
Graduate Researcher
♦ Taipei, Taiwan
Sep. 2015 – Sep. 2017

– Proposed new concept Virtual-hub to enable microservice-based computation offloading by modifying Android Wear OS
– Built network system with load balancer and developed system metric dashboard for performance monitoring (Django)
– Created latency-sensitive applications on wearable and edge devices (speech recognition by CMU Sphinx; Java, Python)

Princeton University – EDGE Lab
Research Intern | Mentor: Prof. Mung Chiang and Dr. Ming-Jye Sheng
♦ Princeton, NJ
Jul. 2014 – Mar. 2015

– Built Markov chain model and formulated IoT session management factors (power consumption, delay, signal load) (Prism)
– Automated probabilistic model simulation with adaptive DRX algorithms and visualized numerical results (Python)
– Conducted toolkits based on AT&T Lab tools to analyze network packets and profile Android app performance (Java)

INDUSTRIAL EXPERIENCE

IoT Eye Inc.
Full-stack Cloud Developer (Contractor)
♦ Remote
Apr. 2021 – Aug. 2021

– Deployed OAM model based on Frappe frameworks on AWS EC2 to manage routing resources across 5 agencies
– Developed DevOps toolkit to automate deployment / system management / API testing to improve product scalability
– Lectured tutorials on Frappe framework through code review on different features of OAM system model

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Silicon Motion (SIMO) – Algorithm and Technology R&D Center
Software Engineer (Supervisor)
♦ Taipei, Taiwan / Milpitas, CA
Jul. 2020 – Apr. 2021

– Devised microservice-based system in on-premise server to automate design flows and boost development efficiency by 2x
– Cooperated with Human Resources as technical campus recruiter to promote on-campus brand awareness
– Established programming disciplines (Python) and organized training sessions for new employees

Software Engineer (Senior)
Dec. 2017 – Jun. 2020

– Built design-tracking system by graph algorithms with visualized profiling metrics to enhance design review efficiency (1.5x)
– Acted as primary external contact person to collaborate with international companies for researching new solutions
– **Promoted twice within 24 months** for outstanding performance on software development and solution finding

TEACHING EXPERIENCE

National Taiwan University
Courses: CSIE 3510 Computer Network, CSIE 5057 Advanced Computer Network
♦ Taipei, Taiwan
Feb. 2016 – Jan. 2017

– Lectured TCP/IP protocol (802.11, 802.3) and demonstrated network packet monitoring and analysis in WireShark
– Designed IRC chatbot application as project assignment to educate students about socket programming (Python, C)
– Improved program robustness by peer-testing system and stimulated creativity by flexible score criterion

SKILLS

Languages	(Python) (Java) (C++) (HTML / CSS) (Javascript) (MATLAB / Octave) (CUDA)
Tools	(Django) (Flask / Eve) (Frappe / MariaDB) (MongoDB) (Bootstrap) (TensorFlow) (Scikit-learn) (Git)
Platforms	(Linux) (AWS EC2 / S3 / DynamoDB / API Gateway / Lambda) (Google App Engine) (Android)

HONORS & AWARDS

Valedictorian of CS Department Graduation Ceremony | National Taiwan University	2017
Outstanding Teaching Assistant Awards | National Taiwan University	2016 & 2017
Presidential Awards | National Chiao Tung University	2014 & 2015