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 Papers

- 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 Papers

- 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 — Remote

Collaborator: Prof. Stephen B. Weinstein and Prof. T. Russell Hsing — 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 — Taipei, Taiwan

Graduate Researcher — 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 — Princeton, NJ

Research Intern | Mentor: Prof. Mung Chiang and Dr. Ming-Jye Sheng — 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. — Remote

Full-stack Cloud Developer (Contractor) — 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 — Taipei, Taiwan / Milpitas, CA

Software Engineer (Supervisor) — 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 — Taipei, Taiwan

Courses: CSIE 3510 Computer Network, CSIE 5057 Advanced Computer Network — 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