Shiyu Wu

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Work Experience

Software Dev Engineer I — Amazon Web Services

2021/06 - Present — Seattle, WA, U.S.

- Work in EC2 Virtual Private Cloud (VPC) Border Gateways team. The team owns services of manipulating & translating packets of all network traffic inbound/outbound EC2 to support VPC use cases.
- Engage in **Crow** project which provides EC2 instance's low latency access to DynamoDB through point to point connection. Work on feature support in NAT's packet process pipeline in C/C++. This feature aims to reduce medium read latency from 3.0ms to 0.9ms.
- Delivered **SYN Flood Protection for S3inEC2** project by developing TCP-SYN proxies in NATs for S3 endpoints DDoS attack protection. Developed cryptographic salt generation system using AWS CDK. Built on-NAT config and salt pullers and control CGI in Python. Established relevant metric monitors and alarms. This security feature is a must-have as part of S3 scaling activities.
- Regularly oncall and improve team-owned services' operations.

Software Engineer Intern — Amazon Web Services

2020/05 - 2020/08 — Austin, TX, U.S.

- Interned at EC2 VPC Dataplane team under EC2 Networking.
- Delivered **Path Maximum Transmission Unit Discovery** feature in C/C++ in NAT's dataplane for handling traffic between EC2 and S3. Completed feature-relevant unit, behave, performance tests, and published metrics for feature monitoring.
- The feature introduces <1% performance overhead with security insurance and extensibility. It allows faster packet loss recovery and provides more control of large packet traffic.

Software Engineer Intern — Flexiv Robotics

2019/06 - 2019/08 — Shanghai, China

- Worked on distributed deep learning framework Horovod, BytePS, and data processing library DALI.
- Built up servers' distributed training platform based on two frameworks. Implemented tailored data loading operators in DALI for object detection training. Achieved 2.5x training speed boosting.

Teaching Assistant — University of Texas at Austin

2019/08 - 2021/05 — Austin, TX, U.S.

- **Algorithms: Techniques & Theory** (Graduate Level)
- **Computer Organization & Architecture**: Instructed students in basic computer system knowledge and hacking systems in C.
- **Advanced Computer Architecture**: Instructed students in topics of out-of-order execution and advanced memory system techniques.
- **Data Analysis & Visualization**: R, SQL, Python instruction.

Teaching Assistant — University of Michigan - Ann Arbor

2018/09 - 2019/05 — Ann Arbor, MI, U.S.

- **Database Management System**: Designed the course project, Grace Hash Join, in C++ and set up the online Autograder. Instructed students in database theory, design, implementation, SQL.

Education

University of Texas at Austin

M.S. in Computer Science

2019/08 - 2021/05 — Austin, TX, U.S.

GPA: 3.97/4.0

University of Michigan - Ann Arbor

B.S.E. in Computer Science

2017/09 - 2019/05 — Ann Arbor, MI, U.S.

GPA: 3.97/4.0, *Summa Cum Laude*

Shanghai Jiao Tong University

B.S.E. in Electrical & Computer Engineering

2015/09 - 2019/08 — Shanghai, China

GPA: 3.75/4.0, Rank: 7/205

Honors & Awards

- National Scholarship (Top 0.2%) 2016/09
- King, Roger Scholarship 2018/08, 2019/01
- SJTU Outstanding Graduate 2019/06
- Jun Yuan Scholarship (Top 2%) 2016/11

Technical Skills

Programming: C | C++ | Python | Java | SQL | Shell | Go | Typescript

Tool & Framework: Git | DPDK | AWS CDK | Docker | MongoDB | PostgreSQL | PyTorch

Publications

Conference Proceedings

- French, K., Wu, S., Pan, T., Zhou, Z., & Jenkins, O. C. (2019). Learning behavior trees from demonstration. In *2019 international conference on robotics and automation (icra)* (pp. 7791–7797). IEEE.
- Zhou, Z., Pan, T., Wu, S., Chang, H., & Jenkins, O. C. (2019). Glassloc: Plenoptic grasp pose detection in transparent clutter. In *2019 ieee/rsj international conference on intelligent robots and systems (iros)* (pp. 4776–4783). IEEE.