Jingxuan (Jensen) Zhang

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RESEARCH INTERESTS

Networking resources abstraction and optimization
Software-defined networking
Networks for large-scale data analytics

PROJECT EXPERIENCE

OpenDaylight ALTO

Project Contact, 2015 - present

- Official open source implementation of the Application-Layer Traffic Optimization (ALTO) protocol.
- Designed and Implemented the main building blocks of ALTO in OpenDaylight.
- Manage the project in the OpenDaylight community and review the code.
- Created OpenALTO community (https://github.com/openalto/).

Unicorn: Unified Resource Orchestration for Multi-Domain, Geo-Distributed Data Analytics

Architect and Contact, August - November 2017

- The first multi-domain, multi-controller orchestration system for scientific data analytics.
- Coordinated with the collaborators from CERN, Caltech and Starlight to deploy the system in Caltech HEP Data Center.
- Demonstrated the prototype in SuperComputing 2017.

Devopen: SDN IDE

Project Lead, 2016 - 2017

- The first IDE supporting visual programming for Software-Defined Networking.
- Integrate the complete SDN lifecycle of Dev, Op and Use.
- Gaven the tutorial and demonstration in OpenDaylight Summit 2016 and SuperComputing 2016.

SeL4-based HD-ElastOS (Kortide, Shanghai)

Intern, Octobor 2014 - April 2015

- A Component Assembly Runtime (CAR) embedded operating system on top of state-of-the-art micro kernel.
- Ported micro-kernel seL4 to some specific hardware platforms (pandanboard, lamobo M1, etc.).
- Ported ElastOS on top of seL4.

EDUCATION

Yale University

Visiting Assistant in Research (*Computer Science*), 2018.11 - 2020.10

Tongji University

Ph.D. Student (*Computer Science*), 2017.03 - now

Master Student (*Computer Science*), 2015.09 - 2017.03

B.Sc. (*Computer Science*), 2013.03 - 2015.07

Undergraduate Student (*Mathematics*), 2011.09 - 2013.01

AWARDS

First prize in Chinese National Undergraduate Mathematics Competition 2012.

Honor Mention prize in ICM/MCM 2014.

Second prize in Chinese National Undergraduate Electronic Design Contest 2014.

PUBLICATIONS

1. Cheng Y., Luo N., **Zhang, J.**, Antonopoulos T., Piskac R., Xiang Q., 2021. Looking for the Maximum Independent Set: A New Perspective on the Stable Path Problem. In Proceedings of the *40th IEEE International Conference on Computer Communications* (*INFOCOM*), IEEE (accepted).

2. **Zhang, J.**, Yang, Y.R., 2020. COC: Hierarchical Coflow Ordering for WAN Bandwidth Optimization in Inter-Data Center. In Proceedings of the *Annual conference of the ACM Special Interest Group on Data Communication on the applications, technologies, architectures, and protocols for computer communication* (*SIGCOMM*), ACM.

3. **Zhang, J.**, Gao, K., Yang, Y.R. and Bi, J., 2020. Prophet: Toward Fast, Error-Tolerant Model-Based Throughput Prediction for Reactive Flows in DC Networks. In *Transactions on Networking* (*TON*), IEEE/ACM.

4. Xiang, Q., **Zhang, J.**, Gao, K., Lim, Y.S., Le, F., Li, G. and Yang, Y.R., 2020, July. Toward Optimal Software-Defined Interdomain Routing. In Proceedings of the *39th IEEE International Conference on Computer Communications* (*INFOCOM*), IEEE, 1529-1538.

5. Xiang, Q., Wang, X., **Zhang, J.**, Newman, H., Yang, Y.R. and Liu, J., 2019. Unicorn: Unified Resource Orchestration for Multi-Domain, Geo-Distributed Data Analytics. In *Future Generation Computer Systems*, Elsevier.

6. Xiang, Q., **Zhang, J.**, Wang, X., Liu, J., Guok, C., Le, F., MacAuley, J., Newman, H. and Yang, Y.R., 2018. Fine-Grained, Multi-Domain Network Resource Abstraction as a Fundamental Primitive to Enable High-Performance, Collaborative Data Sciences. In Proceedings of the *International Conference for High Performance Computing, Networking, Storage and Analysis* (*SC*), ACM.

7. Gao, K., **Zhang, J.**, Yang, Y.R. and Bi, J. 2018., Prophet: Fast Accurate Model-based Throughput Prediction for Reactive Flow in DC Networks. In Proceedings of the *37th IEEE International Conference on Computer Communications* (*INFOCOM*), IEEE, 720-728.

8. Wang, W., **Zhang, J.**, Guo, D., Xiang, Q., Huang, C., Chang, J. and Zhang, L. 2016. Towards an emerging cloudware paradigm for transparent computing. In Proceedings of the *9th IEEE/ACM International Conference on Utility and Cloud Computing* (*UCC*), IEEE, 43-48.

PROGRAMMING SKILLS

Very experienced with development in OpenDaylight.

Familiar with full-stack web development.

Familiar with embedded programming.

BIOGRAPHY

Jingxuan Zhang is a PhD candidate in the Department of Computer Science at Tongji University, advised by Prof. Y. Richard Yang. He was also a CSC (China Scholarship Council) sponsored visiting researcher at Yale univerisity from 2018 to 2020. His doctoral research focuses on network resource discovery, abstraction and programming consistency for large-scale data analytics systems. He is also an active member of IETF ALTO WG and OpenDaylight open source community.

Details for me, visit my homepage in github: https://fno2010.github.io/