Ph.D. Candidate: Boyuan Yan

Beijing University of Posts and Telecommunications
Information and Communication Engineering (Ranked No. 1 in China)
Supervisor: Prof. Jie Zhang
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Education:

Beijing University of Posts and Telecommunications, Beijing, China. Aug. 2015 – Now
Ph.D. candidate, Information and Communication Engineering
Beijing University of Posts and Telecommunications, Beijing, China. Aug. 2011 – Jun. 2015
Bachelor of Information and Communication Engineering

Research Area of Interest and Major:

I focus on cross-domain network control, and resource allocation in IP/Optical networks. I'm trying to use spectral graph theory, reinforcement learning, and other mathematical tools to help controller extract essential features from massive protocol messages, and make optimal decisions.

Honors:

May, 2018	Rising Star Internship Award in top-valued AI unicorn SenseTime research institute.
Nov, 2016	Best Input Award to a Working Group of Internet Engineering Task Force (IETF) 97-th Meetings in Seoul, Korea.
Mar, 2015	Meritorious winner of Mathematical Contest in Modeling.
May, 2014	The first prize of national college student innovation and entrepreneurship program for dynamic bandwidth adjustment by SDN NOX controller.
Nov, 2013	Cisco Certified Network Associate (985/1000).

Projects:

12/2017 – 03/2018 Projects of SenseTime during intership

- I implemented MobileNet v1, MobileNet v2, ShuffleNet and WAE Net for face recognition project of SenseTime, and do some performance improving by pruning and other methods.
- I participate in face unlock project led by Junjie Yan for smartphone manufacturers, and responsible for gaze judgement model within 10ms running time.

08/2017 – 09/2018 Self-Optimization Optical Network (SOON) testbed (Team Leader)

- SOON is a testbed to introduce AI technology into optical network to improve performance of optical network in network engineering and transmission engineering. The implementation of SOON is based on ONOS controller and TensorFlow platform. SOON has been demonstrated at European Conference on Optical Communication in Roma.
- I design the architecture of SOON, and implement main part of SOON.

12/2015 – 03/2017 A Unified Controller for Multi-domain Multi-vendor Multi-granularity OTN Networks (Team Leader)

- The objective aimed to promote the standardization process of PCEP protocol stack and Restconf protocol in IETF, and evaluate abstraction and control of traffic engineered networks (ACTN) architecture, with cooperation with Huawei, Ericsson, Spain Telefonica, China Mobile, China Unicom, Korea SK telecom, Korea ETRI, CAICT.
- We published an IETF standard and several IETF drafts, attended IETF 96th and 97th meetings, and won best input award. And ACTN becomes part of ONOS.
- I'm involved in implementation of physical optical network controller and multi-domain service coordinator, and inter-operation with other controllers developed by partners.

Published Papers (2018):

[1] Yongli Z., **Boyuan Y.**, et al., "SOON: Self-Optimizing Optical Networks with Machine Learning" in **Optics Express (JCR Q1)**, received.

[2] **Boyuan Y.**, et al., "Tidal-Traffic-Aware Routing and Spectrum Allocation in Elastic Optical Networks," **Journal Optical Communication Networks (JCR Q2)**. 10, 832-842 (2018).

[3] **Boyuan Y.**, et al**.,** "Actor-Critic-Based Resource Allocation for Multi-modal Optical Networks" in **IEEE Global Communications Conference 2018**.

[4] **Boyuan Y.**, et al., "First Demonstration of Machine-Learning-based Self-Optimizing Optical Networks (SOON) Running on Commercial Equipment" in **European Conference on Optical Communication 2018**.

[5] **Boyuan Y.**, et al., "Service Function-Oriented Topology Aggregation in Multi-Domain Inter-DC Elastic Optical Networks" in **Optical Fiber Communication Conference 2018**.

[6] **Boyuan Y.**, et al., "First Demonstration of Imbalanced Data Learning-Based Failure Prediction in Self-Optimizing Optical Networks with Large Scale Field Topology" in **Asia Communications and Photonics Conference, PDP**, submitted.

[7] **Boyuan Y.**, et al., "Service Function Path Provisioning with Topology Aggregation in Multi-domain Optical Networks" reviewed by research supervisor.

Published Papers (before 2018)

[8] **Boyuan Y.**, et al., "Poster: SDN based energy management system for optical access network" CHINACOM 2014.

[9] Yongli Z., **Boyuan Y.**, et al., "Software-defined dynamic bandwidth optimization (SD-DBO) algorithm for optical access and aggregation networks" Photonic Network Communications 31, 251-258 (2016).

[10] Yongli Z., **Boyuan Y.**, et al., "Software defined passive optical networks with energy-efficient control strategy" Optik-International Journal for Light and Electron Optics 127, 11211-11219 (2016).

[11] Yongli Z., **Boyuan Y.**, et al., "APP store installed in ONOS-based multi-layer and multi-domain transport SDN platform with novel TE abstraction" in **OFC Conference 2017**.

Skills:

- Master Java, and familiar with Python, Matlab.
- Master development of SDN controllers, i.e., ONOS and OpenDaylight.
- Familiar with AI-related tools like Pytorch, TensorFlow, and Caffe.

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