Shih-Hao Tseng

169 N Holliston Ave Apt 17
Pasadena, CA 91106
U.S.A.

(607) 280-7864 (Mobile)
shtseng@caltech.edu
shih-hao-tseng.github.io/website

Education

Cornell University (CU), Ithaca, NY, U.S.A. Aug. 2013 - Present
PhD in Electrical and Computer Engineering (Advisor: Dr. Kevin Tang)

- Relevant Coursework:
  Practicum in Operating Systems, Advanced Computer Networking, Approximation Algorithm, Convex Analysis, Functional Analysis, Statistical Inference and Decision, Stochastic Systems: Estimation and Control.

Research Interests

Software-Defined Networking

- Centralized control, congestion-free routing and high-frequency network updating.

Communication System

- Network dynamic model, optimization theory and algorithm.

Selected Publications

S.-H. Tseng, A. Tang, G. Choudury, and S. Tse,
"Routing Stability in Hybrid Software-Defined Networks," in *IEEE/ACM Trans. Netw.*, 2019.
S.-H. Tseng and A. Tang,
"Coflow Deadline Scheduling via Network-Aware Optimization," in *Proc. Allerton*, 2018.
S.-H. Tseng, B. Bai, and J. C. S. Lui,
"Hybrid Circuit/Packet Network Scheduling with Multiple Composite Paths," in *Proc. IEEE INFOCOM*, 2018.
S.-H. Tseng and A. Tang,
"A Local Search Algorithm for the Witsenhausen's Counterexample," in *Proc. IEEE CDC*, 2017.
S.-H. Tseng, E. Bitar, and A. Tang,
"Random Convex Approximations of Ambiguous Chance Constrained Programs," in *Proc. IEEE CDC*, 2016.
A. Gushchin, **S.-H. Tseng**, and A. Tang,
"Optimization-Based Network Flow Deadline Scheduling," in *Proc. IEEE ICNP*, 2016.
S.-H. Tseng, C. L. Lim, N. Wu, and A. Tang,
"Time-Aware Congestion-Free Routing Reconfiguration," in *Proc. IFIP Networking*, 2016.
S.-H. Tseng, S. Agarwal, R. Agarwal, H. Ballani, and A. Tang,
"Inter-Datacenter Bulk Transfers with CodedBulk," submitted for review.

Experience

California Institute of Technology, Pasadena, CA, U.S.A. Oct. 2018 - Present
Posdoctoral Scholar

- Lead layered network control projects.

Cornell University, Ithaca, NY, U.S.A. Aug. 2014 - Aug. 2018
Graduate Research Assistant/Teaching Assistant

- Developed a virtual SDN test framework to verify congestion-free updating properties.
- Simulated optimization-based flow deadline scheduling policies under SDN in NS-3.
- Helped teach Introduction to Probability and Inference for Random Signals and Systems.

The Chinese University of Hong Kong, Shatin, NT, Hong Kong June 2017 - Aug. 2017
Research Assistant

- Developed efficient scheduling algorithms for hybrid packet/circuit networks.

AT&T, Middletown, NJ, U.S.A. June 2016 - Aug. 2016
Student Intern - Technical II

- Developed models and designed algorithms for hybrid software-defined networks.

Skills

Programming Languages: Proficient in C++, Python and Verilog.
Programming Skills: Working knowledge of linux based C++ socket and multithreaded programming.
Simulation Tools: Proficient in PSpice, MATLAB, and NS-3.
Languages: Fluent in English; native in Mandarin Chinese and Taiwanese Hokkien.

Honors and Awards

Winner of the AT&T SDN Network Design Challenge 2016
- Awarded to the top team providing the most efficient and cost effective routing method.

Jacobs Fellowship (CU) 2014

Studying Abroad Scholarship (Ministry of Education, Taiwan(R.O.C.)) 2013

Honorary Member of the Phi Tau Phi Scholastic Honor Society 2012
- Presented to seniors from each college in Taiwan ranking within top 1% of their department.

President's Awards (NTU) 2009, 2010, 2011, 2012
- Four-time recipient; awarded to students ranking within top 5% of their department.

Outstanding Project Award 2011
- Awarded to the top 10 teams of Cross-Strait Finals of 2011 Innovate Asia Competition (FPGA design).