

# SHIH-HAO TSENG

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

(607) 280-7864 (Mobile)  
shhseng@caltech.edu

## EDUCATION

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- 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.
- National Taiwan University (NTU)**, Taipei, Taiwan Sept. 2008 - June 2012  
*Bachelor of Science in Engineering (minor in Economics)*
- GPA: 92.20/100.00; ranking 2<sup>nd</sup> in a class of 226

## RESEARCH INTERESTS

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- Software-Defined Networking**
- Centralized control, congestion-free routing and high-frequency network updating.
- Communication System**
- Network dynamic model, optimization theory and algorithm.

## PUBLICATIONS

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- S.-H. Tseng**, S. Agarwal, R. Agarwal, H. Ballani, and A. Tang,  
“Pushing More Bits Through The Same Pipes: Inter-Datcenter Bulk Transfers with CodedBulk,” in preparation.
- S.-H. Tseng**,  
“Network-Calculus-Based Upper Bounds on Age of Information,” submitted for review.
- J. Cheng, **S.-H. Tseng**, and A. Tang,  
“Distributed Edge Load Balancing in 5G Fog Networks,” in preparation.
- S.-H. Tseng**, A. Tang, G. Choudury, and S. Tse,  
“Routing Stability in Hybrid Software-Defined Networks,” accepted by *IEEE Transaction on Networking* on condition of minor revisions.
- N. Wu, **S.-H. Tseng**, and A. Tang,  
“Accurate Rate-Aware Flow-Level Traffic Splitting,” in *Proc. Allerton*, 2018.
- 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.

## EXPERIENCE

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- Cornell University**, Ithaca, NY, U.S.A. Aug. 2014 - Present  
*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

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**Programming Languages:** Proficient in C++, Python and Verilog; working knowledge of ActionScript, C, Basic, HTML, Java, JavaScript, MySQL, and PHP.

**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; basic understanding of Cantonese, French, German, Spanish, and Japanese.

## HONORS AND AWARDS

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

<b>Jacobs Fellowship (CU)</b>	2014
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<b>Studying Abroad Scholarship (Ministry of Education, Taiwan(R.O.C.))</b>	2013
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<b>Honorary Member of the Phi Tau Phi Scholastic Honor Society</b>	2012
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- Presented to seniors from each college in Taiwan ranking within top 1% of their department.

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

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

<b>Freshman Chinese Writing Award (NTU)</b>	2009
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