

SHIH-HAO TSENG

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U.S.A.

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EDUCATION

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| Cornell University (CU) , Ithaca, NY, U.S.A.
<i>PhD in Electrical and Computer Engineering (Advisor: Dr. Kevin Tang)</i> <ul style="list-style-type: none">Relevant Coursework:
Practicum in Operating Systems, Advanced Computer Networking, Approximation Algorithm, Convex Analysis, Functional Analysis, Statistical Inference and Decision, Stochastic Systems: Estimation and Control. | Aug. 2013 - Dec. 2018 |
| National Taiwan University (NTU) , Taipei, Taiwan
<i>Bachelor of Science in Engineering (minor in Economics)</i> <ul style="list-style-type: none">GPA: 92.20/100.00; ranking 2nd in a class of 226 | Sept. 2008 - June 2012 |

RESEARCH INTERESTS

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

EXPERIENCE

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| California Institute of Technology , Pasadena, CA, U.S.A.
<i>Postdoctoral Scholar</i> <ul style="list-style-type: none">Lead the project of freshness-driven network control.Developed generic solver for unconstrained control problems.Investigated perseverance-aware rate-adaptive networks. | Oct. 2018 - Present |
| Cornell University , Ithaca, NY, U.S.A.
<i>Graduate Research Assistant/Teaching Assistant</i> <ul style="list-style-type: none">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. | Aug. 2014 - Aug. 2018 |
| The Chinese University of Hong Kong , Shatin, NT, Hong Kong
<i>Research Assistant</i> <ul style="list-style-type: none">Developed efficient scheduling algorithms for hybrid packet/circuit networks. | June 2017 - Aug. 2017 |
| AT&T , Middletown, NJ, U.S.A.
<i>Student Intern - Technical II</i> <ul style="list-style-type: none">Developed models and designed algorithms for hybrid software-defined networks. | June 2016 - Aug. 2016 |

SKILLS

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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| Winner of the AT&T SDN Network Design Challenge <ul style="list-style-type: none">Awarded to the top team providing the most efficient and cost effective routing method. | 2016 |
| 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 <ul style="list-style-type: none">Presented to seniors from each college in Taiwan ranking within top 1% of their department. | 2012 |
| President's Awards (NTU) <ul style="list-style-type: none">Four-time recipient; awarded to students ranking within top 5% of their department. | 2009, 2010, 2011, 2012 |
| Outstanding Project Award <ul style="list-style-type: none">Awarded to the top 10 teams of Cross-Strait Finals of 2011 Innovate Asia Competition (FPGA design). | 2011 |
| Freshman Chinese Writing Award (NTU) | 2009 |

PUBLICATIONS

- S.-H. Tseng**,
“Realization, Internal Stability, and Controller Synthesis,” submitted for review.
- S.-H. Tseng** and J. S. Li,
“SLSpy: Python-Based System-Level Controller Synthesis Framework,” submitted for review.
- S.-H. Tseng**, S. Han, and A. Wierman,
“In-Network Freshness Control: Trading Throughput for Freshness,” submitted for review.
- S.-H. Tseng**, S. Agarwal, R. Agarwal, H. Ballani, and A. Tang,
“Inter-Datacenter Bulk Transfers with CodedBulk,” submitted for review.
- S.-H. Tseng**, C. Amo Alonso, and S. Han,
“System Level Synthesis via Dynamic Programming,” in *Proc. IEEE CDC*, 2020.
- J. S. L. Li and **S.-H. Tseng**,
“SLS-MATLAB Toolbox: Do-It-Yourself System Level Synthesis [Poster],” in *Proc. IEEE ACC*, 2020.
- S.-H. Tseng** and J. Anderson,
“Deployment Architectures for Cyber-Physical Control Systems,” in *Proc. IEEE ACC*, 2020.
- S.-H. Tseng**,
“A Generic Solver for Unconstrained Control Problems with Integral Functional Objectives,” in *Proc. IEEE ACC*, 2020.
- 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**,
“Perseverance-Aware Traffic Engineering in Rate-Adaptive Networks with Reconfiguration Delay,” in *Proc. IEEE ICNP*, 2019.
- J. Cheng, **S.-H. Tseng**, and A. Tang,
“Worst-Case Latency Performance of Load Balancing Through Distributed Waterfilling Algorithm,” in *Proc. CISS*, 2019.
- 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.
- S.-H. Tseng**,
“Part-Time Emulation of Network Applications via Simulated Links,” in preparation.
- S.-H. Tseng**,
“Network-Calculus-Based Upper Bounds on Age of Information,” in preparation.