Jing Shuang (Lisa) Li

(626) 515-1749 | jsli@caltech.edu

Last updated May 2022

Education

California Institute of Technology – Ph.D. in Control & Dynamical Systems

Sep 2018 – Jun 2023 (Expected)

Thesis: Distributed Control Theory for Cyberphysical and Biological Systems

Advisor: John C. Doyle

University of Toronto – B.A.Sc. in Engineering Science, Electrical Engineering Major

Sep 2013 – Jun 2018

Cumulative GPA: 3.92/4.0

Papers

[1] **J. S. Li**, J. C. Doyle, "Distributed Robust Control for Systems with Structured Uncertainties", Submitted to *IEEE Conference on Decision and Control*, 2022 [pdf]

[2] L. Conger, **J. S. Li**, E. Mazumdar, S. L. Brunton, "Nonlinear System Level Synthesis for Polynomial Dynamical Systems", Submitted to *IEEE Conference on Decision and Control*, 2022 [pdf]

[3] C. Amo Alonso, **J. S. Li**, N. Matni, J. Anderson, "Distributed and Localized Model Predictive Control. Part II: Theoretical Guarantees", Submitted to *IEEE Transactions on Control of Network Systems*, 2022 [pdf]

[4] C. Amo Alonso, **J. S. Li**, J. Anderson, N. Matni, "Distributed and Localized Model Predictive Control. Part I: Synthesis and Implementation", Submitted to *IEEE Transactions on Control of Network Systems*, 2022 [pdf]

[5] **J. S. Li**, "Internal Feedback in Biological Control: Locality and System Level Synthesis", to appear in *IEEE American Control Conference*, 2022 [pdf] ***Best student paper finalist (1 of 5)***

[6] J. Stenberg, **J. S. Li**, A. A. Sarma, J. C. Doyle, "Internal Feedback in Biological Control: Diversity, Delays, and Standard Theory", to appear in *IEEE American Control Conference*, 2022 [pdf]

[7] A. A. Sarma, **J. S. Li**, J. Stenberg, G. Card, E. S. Heckscher, N. Kasthuri, T. Sejnowski, J. C. Doyle, "Internal Feedback in Biological Control: Constraints and Layered Architectures", to appear in *IEEE American Control Conference*, 2022 [pdf]

[8] **J. S. Li**, C. Amo Alonso, J. C. Doyle, "Frontiers in Scalable Distributed Control: SLS, MPC, and Beyond", in *IEEE American Control Conference*, pp.2720–2725, 2021 [pdf]

[9] **J. S. Li**, D. Ho, "Separating Controller Design from Closed-Loop Design: A New Perspective on System-Level Controller Synthesis", in *IEEE American Control Conference*, pp. 3529–3534, 2020 [pdf]

Posters, Talks, Toolboxes

J. S. Li, J. Yu, C Amo Alonso, J. C. Doyle, "System Level Synthesis: New Frontiers in Distributed Control" Organizer and speaker for full-day workshop to appear at *IEEE Conference on Decision and Control*, 2022

J. C. Doyle, C. Amo Alonso, **J. S. Li**, F. Xiao, "Rule-Based Systems Theory for Regulation in Networks of Biomolecules, Microbial Cells and Populations". Poster at *8th Build-a-Cell Workshop*, 2022

J. S. Li, "Internal Feedback Pathways: From Control Theory to Sensorimotor Systems (and beyond)". Invited seminar talk at *Center for Computational Neuroscience, Flatiron Institute* (Simons Foundation), 2021

J. S. Li, "Internal Feedback: From Optimal Control to the Sensorimotor System". Poster at *Chen Institute for Neuroscience Poster Session*, 2021

S. H. Tseng, **J. S. Li**, "SLSpy: Python-Based System-Level Controller Synthesis Framework", 2020 [pdf] [code]

J. S. Li, S. H. Tseng, "SLS-MATLAB Toolbox: Do-It-Yourself System Level Synthesis". Poster at *IEEE American Control Conference*, 2020 [code]

J. S. Li, J. Yu, C. Amo Alonso, J. C. Doyle, "System Level Synthesis: Distributed Control Made Easy". Poster at *Center for Autonomous Systems and Technologies (CAST) Scientific Showcase*, 2020

Funding History

NSERC PGS – Doctoral (63K CAD over 36 months)	*Awarded May 2021*
NSERC CGS – Doctoral (105K CAD over 36 months)	*Offered Apr 2021, declined*
NSERC USRA (6K CAD over 4 months)	*Awarded twice: May 2015, May 2016*

Teaching

Teaching assistant, Robust Control Theory (CDS 231)	*Spring 2022*
Teaching assistant, Introduction to Distributed Algorithms (CS 142)	*Fall 2021*
Teaching assistant, Introduction to Feedback Control Systems (CDS 110)	*Spring 2021*
Head teaching assistant, Relational Databases (CS 121)	*Winter 2021*
Teaching assistant, Robust Control Theory (CDS 231)	*Winter 2020*
Teaching assistant, Network Control Systems (CDS 141)	*Spring 2020*

Advising & Mentorship

Lauren Conger, PhD student at Caltech

Josefin Stenberg, summer intern at Caltech

Diversity, Equity, and Inclusion

Treasurer, Caltech Canadian Club *May 2021 – Present*

Catalina Community Associate *Nov 2020 – Present*

Mentor for international, departmental, and diversity programs *Oct 2020 – Present*

Chair, Graduate Women in CMS *Feb 2020 – May 2022*

Member (1 of 9), departmental Graduate Advisory Council *Oct 2019 – Oct 2021*

Organizer (1 of 2), departmental PhD Preliminary Exam Prep Sessions *Oct 2019 – Aug 2020*

Orientation leader and peer panelist, international and departmental orientation *Sep 2019, Sep 2020*

Academic Service

Conference reviewer: IEEE Conference on Decision and Control 2021, 2022

Journal reviewer: IEEE Transactions on Vehicular Technology

Additional Work & Research Experience

Piano and Voice Instructor, Lippert Music Center *Sep 2012 – Jun 2018*
Taught private music lessons and prepared students for Royal Conservatory exams and competitions

Undergraduate Thesis, Reconfigurable Antenna Lab (with Prof. Sean Hum) *Sep 2017 – Apr 2018*
Project: Neural network inverse models for electromagnetic metasurface design

Full-Time Software Engineering Intern, Verity Studios AG *Sep 2016 – Aug 2017*
Wrote code in Python, C++, and SQL to support drone flight planning, evaluation, and simulation

Student Researcher, Reconfigurable Antenna Lab (with Prof. Sean Hum) *May 2016 – Aug 2016*
Project: C++ simulation tool for periodic electromagnetic scatterers

Student Researcher, Lab for Advanced Power Conversion (with Prof. Peter Lehn) *May 2015 – Aug 2015*
Project: Wireless energy harvester for smart-grid monitoring applications

Student Researcher, Nanomaterials Lab (with Prof. Ho Ghim Wei) *May 2014 – Aug 2014*
Project: Copper-based nanostructures for photocatalytic hydrogen production

Additional Skills

Programming and scripting: MATLAB, Python, C++, SQL

Foreign languages: Mandarin Chinese (fluent), French (basic)

Software: Unreal Engine, COMSOL Multiphysics, Altium Designer

Instruments: piano, voice (classical, musical theatre, pop), cello, guitar

Certifications from the Royal Conservatory of Music

Associate (ARCT) in Piano Performance, 1st Class Honours (practical only)
Grade 10 comprehensive certificate in Piano Performance, 1st Class Honours
Grade 10 comprehensive certificate in Vocal Performance, 1st Class Honours