CHENGDA JI

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Baltimore, MD, 21218

EDUCATION

Johns Hopkins University, Baltimore, MD, USA *August 2016 - Present*
Doctor of Philosophy
Advisor: **Dennice F. Gayme**, Pseudo Advisor: **Enrique Mallada**

Polytechnic University of Turin, Turin, Italy *July 2015 - August 2016*
(Politecnico di Torino)
Bachelor of Science
CSC Scholar, Dual Bachelor Degree

Beijing Institute of Technology, Beijing, China *September 2012 - August 2016*
Bachelor of Engineering

RESEARCH FOCUS

Chengda Ji's work focus on implementing **control** and **learning** algorithms on networked dynamical systems, e.g., power systems, vehicle platoons, finance systems, etc.

- Consensus and synchronization strategies for networked systems. Strategies' robust performance analysis.
- Estimation and control algorithms for the networked system in the presence of noise. Noise identification and evolution analysis.
- Deep Learning algorithm in time series prediction and state estimation. Reinforcement Learning algorithms in the stochastic systems.

PUBLICATIONS

1. **Strength and Stiffness of Metal Building Rod Brace Anchor Connections**, H. Forougi, **C. Ji**, B.W. Schafer, and C.D. Moen, *in Proc. of SSRC Annual Stability Conf.*, April 2018.
2. **Evaluating Robustness of Consensus Algorithms Under Measurement Error over Digraphs**, **C. Ji**, E. Mallada, and D.F. Gayme, *in Proc. of the Conf. on Decision and Control*, December 2018.
3. **Collision Potential Analysis in First and Second Order Integrator Networks Over Strongly Connected Digraphs**, **C. Ji**, and D.F. Gayme, *in Proc. of the Conf. on Decision and Control*, December 2018.
4. **Coordinating Distribution System Resources for Co-optimized Participation in Energy and Ancillary Service Transmission System Markets**, **C. Ji**, M. Hajiesmaili, D.F. Gayme, and E. Mallada, *in Proc. of American Control Conf.*, July 2019.
5. **Augmented Consensus Algorithm for Discrete Systems**, **C. Ji**, Y. Shen, M, Kobilarov, D. F. Gayme. *in Proc. of the 8th IFAC Workshop on Distributed Estimation and Control in Networked Systems*, September 2019.

6. **Techno-economic Coordination of Demand-side Resources to Enable 100 % Renewable Distribution Systems**, N. Nazir, S. Kundu, T. Ramachandran, **C. Ji**, E. Mallada, D. F. Gayme, S. Brahma, H. Ossareh, P. Racherla, and M. Almassalkhi. (*Submitted to IEEE Trans. on Power Systems.*)
7. **Real-time Energy Market Arbitrage via Aerodynamic Energy Storage in Wind Farms**, C. R. Shapiro, **C. Ji**, and D. F. Gayme. (*Submitted to 2020 American Control Conf.*)
8. **Optimal Coordination of Distribution System Resources under Uncertainty for Joint Energy and Ancillary Service Market Participation**, **C. Ji**, P. You, E. Pivo, Y. Shen, D.F. Gayme, and E. Mallada, *(submitted to 2020 Power and Energy Society General Meeting).*
9. **Robust Approximate Consensus Algorithm**, **C. Ji**, E. Mallada, and D. F. Gayme, *(submitted to Transactions on Automatic Control).*
10. **Experimental Determination of Stiffness and Strength for metal Building System Rod Bracing**, H. Foroughi, **C. Ji**, C.D. Moen, and B.W. Schafer, *(submitted to Journal of Constructional Steel Research).*

ABSTRACTS

1. **Coordinating Distribution System Resources for Co-optimized Participation in Energy and Ancillary Service Transmission System Markets**, *Federal Energy Regulatory Commission Trans-Atlantic INFRADAY Conf.*, Washington DC, November 2018.
2. **Optimal Distribution System Resources Coordination in the Presence of Uncertainties**, *Federal Energy Regulatory Commission Trans-Atlantic INFRADAY Conf.*, Washington DC, October 2019.

TALK

1. **Optimal Distribution System Resources Coordination in the Presence of Uncertainties**, *Environmental Science and Management Seminar*, Johns Hopkins University, Baltimore, MD, October 2019.

SELECTED AWARDS

1. Graduate Fellowship, Johns Hopkins University
2. CSC Undergraduate Student Scholarship, China Scholarship Council

TEACHINGS

1. **EN.530.616 Introduction to Linear Systems** Spring 2019
   Teaching Assistant, Advisor: Prof. Noah Cowan
2. **EN.520.353 Control Systems** Spring 2018
   Course Assistant, Advisor: Prof. Enrique Mallada
3. **EN.530.761 Mathematical Methods of Engineering** Fall 2017
   Teaching Assistant, Advisor: Prof. Dennice Gayme

ACADEMIC REVIEWING SERVICES

Conferences

1. **American Control Conference (ACC)** 2019
2. **Conference on Decision and Control (CDC)** 2019

3. **IEEE Power and Energy Society General Meeting Conference (PES GM)** 2019

Journal

1. **IEEE Transactions on Control of Network Systems (TCNS)**

ROBOTIC PROJECTS

1. **Soccer-Mip Robot**
   Designed the Soccer-Mip, a mobile robot which can function as a robot soccer player, based on the EduMip robot, Odroid XU4 bare-board computer and RealSense R200 camera. Developed the robot moving algorithm based on the nonlinear back-stepping and hard coded the moving algorithm into the Soccer-Mip through ROS. Participated in the robot target identification algorithm coding.
   -URL: *hub.jhu.edu/2017/05/18/mechanical-engineering-students-demonstrate-robot-designs/*

2. **UR5 Tracking Robot**
   Designed a robot based on UR5 to track and follow given targets. Took the main responsibility in the robot arm joint moving algorithm developing.
   -URL: *www.youtube.com/watch?v=NwgyOmksUyk*

EXTRACURRICULAR ACTIVITIES

1. **Summer Program, King's College London**, Energy Policy Study. July-August, 2014

2. **Chinese College Students Delegation to Japan**, Student Representative. November 2014