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 research interests include modeling, dynamics, and control of networked systems, e.g., power systems, vehicle platoons, and computer networks. His current research focuses on developing distributed control and learning frameworks for networked systems, with special focus on the following points:

R1: Consensus and synchronization strategies for networked systems, and the robust performance analysis of corresponding strategies.

R2: Estimation and control algorithms for the networked system in the presence of disturbance. Noise identification and evolution analysis.

R3: Deep Learning algorithm in time series prediction and state estimation. Reinforcement Learning algorithms in the stochastic systems.

PUBLICATIONS

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).*

9: **Robust Approximate Consensus Algorithm**, **C. Ji**, E. Mallada, and D. F. Gayme, *(submitted to Trans. on Automatic Control).*

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).*

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.*)

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.*)

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.

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.

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.

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.

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.

ABSTRACTS

A2: **Optimal Distribution System Resources Coordination in the Presence of Uncertainties**, *Federal Energy Regulatory Commission Trans-Atlantic INFRADAY Conf.*, Washington DC, October 2019.

A1: **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.

TALK

T1: **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 — January 2017
2. CSC Undergraduate Student Scholarship, China Scholarship Council — August 2015

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. **Lab for Computational Sensing and Robotics**, Coffee Tsar & Barista. July 2019-Present
2. **Summer Program, King's College London**, Energy Policy Study. July-August, 2014
3. **Chinese College Students Delegation to Japan**, Student Representative. November 2014

REFERENCES

R1: **Dennice Gayme**, Johns Hopkins University
Associate Professor in Mechanical Engineering and the Carol Croft Linde Faculty Scholar
Email: dennice@jhu.edu

R2: **Enrique Mallada**, Johns Hopkins University
Assistant Professor in Electrical and Computer Engineering
Email: mallada@jhu.edu