



Shengjun(Daniel) Zhang

RESEARCH ASSISTANT · CONTROL · OPTIMIZATION · STATISTICAL LEARNING

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| 🎓 Shengjun(Daniel) Zhang

"There is nothing more practical than a good theory."

Education

UNT (University of North Texas)

PH.D. MAJOR IN ELECTRICAL ENGINEERING

- Minor in Business Management

Denton, Texas, U.S.A

Jan. 2018 - present

NYU (New York University)

M.S. IN ELECTRICAL ENGINEERING

- Robotic Control

New York, New York, U.S.A

Jan. 2015 - Jan. 2017

CAU (China Agricultural University)

B.S. IN AUTOMATION OF HONORS PROGRAM WITH *Cum Laude*

- Control Theory

Beijing, China

Sep. 2010 - Jul. 2014

Research Interests

Learning

Statistical Learning, Machine Learning, Reinforcement Learning

Control & Optimization

Control System, Convex Optimization, Non-convex Optimization, Distributed Optimization

Power System

DERs with Transactive Approaches

Skills

Programming

Julia, Python, MATLAB

Languages

Mandarin, English

Professional Experience

University of North Texas.

RESEARCH/TEACHING ASSISTANT

- Cyber-Physical Energy System Laboratory, Department of Electrical Engineering.
- Supervisor: Dr. Colleen Bailey & Dr. Tao Yang.

Denton, Texas, U.S.A

Jan. 2018 - present

Huazhong University of Science and Technology.

VISITING RESEARCHER

- Key Laboratory of Image Processing and Intelligent Control of Education Ministry, School of Artificial Intelligence and Automation.
- Supervisor: Dr. Ye Yuan.

Wuhan, China

May 2018 - Jul. 2018

Zhejiang University.

VISITING RESEARCHER

- Group of Networked Sensing and Control, College of Control Science and Engineering.
- Supervisor: Dr. Junfeng Wu.

Hangzhou, China

Jul. 2018 - Jul. 2018

New York University.





RESEARCH ASSISTANT

- Control/Robotics Research Laboratory, Tandon School of Engineering.
- Supervisor: Dr. Farshad Khorrami.





New York, New York, U.S.A

Jan. 2016 - Jul. 2016

JOURNAL ARTICLES [8]


- Variance Aware Reward Smoothing for Deep Reinforcement Learning
Yunlong Dong, Shengjun Zhang, Xing Liu, Yu Zhang, Tan Shen
Neurocomputing (Under Review) . Under Review
- A Primal-Dual SGD Algorithm for Distributed Nonconvex Optimization
Xinlei Yi, Shengjun Zhang, Tao Yang, Tianyou Chai, Karl H Johansson
SIAM Journal on Optimization (Under Review).  Under Review
- Linear Convergence of First- and Zeroth-Order Primal-Dual Algorithms for Distributed Nonconvex Optimization
Xinlei Yi, Shengjun Zhang, Tao Yang, Tianyou Chai, Karl H Johansson
IEEE Transactions on Automatic Control (Under Review).  Under Review
- Sublinear and Linear Convergence of ADMM for Distributed Nonconvex Optimization
Xinlei Yi, Shengjun Zhang, Tao Yang, Tianyou Chai, Karl H Johansson
IEEE Transactions on Control of Network Systems (Under Review) . Under Review
- Zeroth-order Algorithms for Distributed Stochastic Nonconvex Optimization
Xinlei Yi, Shengjun Zhang, Tao Yang, Tianyou Chai, Karl H Johansson
IFAC Automatica (In Submission) . In Submission
- Distributed Zeroth-order Stochastic Coordinate Methods
Shengjun Zhang, Yunlong Dong, Dong Xie, Lisha Yao, Colleen P. Bailey, Shengli Fu
IEEE Transactions on Signal Processing (In Submission) . In Submission
- Event-triggered Distributed Optimization Algorithms (in Chinese)
Tao Yang, Lei Xu, Xinlei Yi, Shengjun Zhang, Ruijuan Chen, Yuzhe Li
ACTA AUTOMATICA SINICA 47.x (2021) pp. 1–11. Science Press.  2021
- A Magnetic Nanoparticle Based Nucleic Acid Isolation And Purification Instrument for DNA Extraction of Escherichia coli O157: H7
Yahui Chen, Jianhan Lin, Qin Jiang, Qi Chen, Shengjun Zhang, Li Li
Journal of nanoscience and nanotechnology 16.3 (2016) pp. 2296–2300. American Scientific Publishers.  2016

CONFERENCE PROCEEDINGS [9]

- A Primal-Dual Algorithm for Distributed Sparse Principal Component Analysis
Shengjun Zhang, Colleen P. Bailey
55th Annual Asilomar Conference on Signals, Systems, and Computers Pacific Grove, CA, United States
Under Review
- Convergence Analysis of Nonconvex Distributed Stochastic Zeroth-order Coordinate Method
Shengjun Zhang, Yunlong Dong, Dong Xie, Lisha Yao, Colleen P. Bailey, Shengli Fu
60th IEEE Conference on Decision and Control (CDC)  Austin, TX, United States
Under Review
- Event-Triggered Proportional-Integral Algorithms for Distributed Optimization (Invited Session Extended Abstract)
Tao Yang, Lei Xu, Xinlei Yi, Shengjun Zhang, Yuzhe Li
40th Chinese Control Conference (CCC) Shanghai, China
2021
- Exponential Convergence for Distributed Smooth Optimization Under the Restricted Secant Inequality Condition
Xinlei Yi, Shengjun Zhang, Tao Yang, Tianyou Chai, Karl H Johansson
21st IFAC World Congress  Berlin, Germany
2020
- Linear Convergence for Distributed Optimization Without Strong Convexity
Xinlei Yi, Shengjun Zhang, Tao Yang, Tianyou Chai, Karl H Johansson
59th IEEE Conference on Decision and Control (CDC)  Jeju Island, Republic of Korea
2020
- Obstacle Avoidance and Navigation Utilizing Proximal Policy Optimization
Daniel Zhang, Colleen P. Bailey
SPIE Artificial Intelligence and Machine Learning for Multi-Domain Operations Applications II  California, United States
2020
- Optimal Control Under Communication Constraints for Multi-agent Unmanned Vehicles
Daniel Zhang, Colleen P. Bailey

Event-Triggered Control for Consensus of Multi-Agent Systems with Nonlinear Output and Directed Topologies

Xinlei Yi, Shengjun Zhang, Tao Yang, Junfeng Wu, Karl Henrik Johansson

38th Chinese Control Conference (CCC) Guangzhou, China
2019**Computational Convergence Analysis of Distributed Optimization Algorithms for Directed Graphs**

Shengjun Zhang, Xinlei Yi, Jemin George, Tao Yang

15th IEEE International Conference on Control and Automation (ICCA)  (**Best Student Paper Shorten List**)Edinburgh, Scotland
2019**PREPRINT [2]****Distributed Proportional-Integral Optimization Algorithms with Event-triggered Communication**

Wen Du, Xinlei Yi, Shengjun Zhang, Jemin George, Tao Yang

2019

Distributed Economic Dispatch over Networks with Markovian Communication Losses

Junfeng Wu, Shengjun Zhang, Tao Yang, Ling Shi, Hong Wang

2018

Honors & Awards

2020 **Third Place Graduate Student Poster Competition**, IEEE North Tech SAS

Denton, Texas, U.S.A

2019 **IEEE Outstanding Graduate Student**, IEEE local event

Denton, Texas, U.S.A

2019 **College of Engineering Dean Tuition Scholarship**, UNT

Denton, Texas, U.S.A

2019 **Toulouse Graduate School Scholarship**, UNT

Denton, Texas, U.S.A

2018 **College of Engineering Dean Tuition Scholarship**, UNT

Denton, Texas, U.S.A

2018 **Toulouse Graduate School Scholarship**, UNT

Denton, Texas, U.S.A

2012 **2nd prize**, Physics Experiment Competition of colleges

Beijing, China

Certifications

2016 **Machine Learning**, Instructor: Andrew Ng, license: NNBCAXYFA2HK.Stanford University
on Coursera

Mentoring

Kelvin Darden

UNT

M.S. STUDENT

2018

- Project on load shedding in Smart Grid.
- First placement: engineer, Oncor Electric Delivery.

Teaching Experiences

Spring '19 **EENG 2620 Signals and Systems**, Teaching Assistant

UNT

Fall '18 **EENG 2620 Signals and Systems**, Teaching Assistant

UNT

Fall '18 **EENG 5940 Control and Optimization for Power Systems**, Teaching Assistant

UNT

Professional Activities

Member IEEE HKN, IEEE Studnet Member, IEEE Young Professionals

Journal Reviewer IET Control Theory and Applications

Neurocomputing

Automatica

International Journal of Robust and Nonlinear Control

Conference Reviewer Advances in Neural Information Processing Systems (NeurIPS)

IEEE Conference on Decision and Control (CDC)

American Control Conference (ACC)

IEEE International Conference on Control and Automation (ICCA)

Chinese Control Conference (CCC)