Zhibin Zou

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Education

University at Albany, State University at New York *Albany, NY, USA*

PhD in Electrical and Computer Engineering Sep. 2019 - Present

- Advised by Weifu Wang from 2019-2021
- Advised by Aveek Dutta from 2021-Present
- GPA: 4.0/4.0
- Selected Courses: Advanced Digital Communication, Modern Wireless Network, Machine Learning and Information Theory, Probability and Random Process, Digital Signal Processing, Statistical Signal Processing, Engineering Optimization, Parameter Estimation and Signal Detection Theory, Discrete Mathematics with Applications, Cyber-Physical Systems, Linear Control Theory, Robotics.

Xidian University *Xi'An, China*

MS in Electrical and Computer Engineering Sep. 2016 - Jun. 2019

Xidian University *Xi'An,, China*

BS in Electrical and Computer Engineering Sep. 2012 - Jun. 2016

Publications

Journals

[1] **Z Zou**, M Careem, A Dutta, N Thawdar. "Joint Spatio-Temporal Precoding for Non-Stationary Channels, " *IEEE Transactions on Communications (TCOM)* (Under Review) [pdf]

[2] **Z Zou**, L Song, X Cheng. "Labeled box-particle CPHD filter for multiple extended targets tracking," *Journal of Systems Engineering and Electronics* [pdf]

[3] X Cheng, L Song, H Ji, **Z Zou**. "Group target tracking algorithm based on labeled box particle probability hypothesis density ," *Systems Engineering and Electronics* (in Chinese) [pdf]

Conferences

[1] **Z Zou**, X Wei, D Saha, A Dutta, G Hellbourg. "SCISRS: Signal Cancellation using Intelligent Surfaces for Radio Astronomy Services," *IEEE Global Communications Conference (GLOBECOM), 2022* [pdf]

[2] **Z Zou**, M Careem, A Dutta, N Thawdar. "Unified Characterization and Precoding for Non-Stationary Channels," *IEEE International Conference on Communications (ICC), 2022* [**Best Paper Award**] [pdf]

[3] **Z Zou**, W Wang, "Optimizing towards the best insertion-based error-tolerating joints," (Pending) [pdf] | [video]

[4] X Cheng, L Song, **Z Zou**. "Multiple group target tracking with evolving networks and labeled box particle PHD filter," *Chinese Control And Decision Conference (CCDC), 2018* [pdf]

[5] **Z Zou**, L Song, X Cheng. "Labeled box-particle PHD filter for multi-target tracking," *IEEE International Conference on Computer and Communications (ICCC), 2017* [pdf]

Patents

[1] L Song, Y Pan, **Z Zou**, et al. "Passive Box-particle PHD multi-target tracking based on TDOA," *CN Patent*, Application Number 201810825869.8, Patent Number CN108981707B (Issued) [Link]

[2] L Song, H Cent, Y Pan, P Yang, **Z Zou**, et al. "A evaluation for the multple group and extended target ellipse shape estimation," *CN Patent*, Application Number 201811640647.5, Patent Number CN109683150A (Filed) [Link]

[3] L Song, P Yang, H Ceng, Y Pan, **Z Zou**, et al. "Front vehicles distance measuring based on deep learning," *CN Patent*, Application Number 201811322870.5, Patent Number CN109509223A (Filed) [Link]

Awards and Honors

Jun. 2022	**Young Gladiator**: "Funded by Institute for the Wireless Internet of Things at Northeastern University"
May. 2022	**Best Paper Award, IEEE ICC**: "IEEE ICC is the flagship conference of IEEE ComSoc"
Sep. 2020	**Granted Chinese Patent**: "Patent (CN 108981707B) filed at Jul. 2018 is granted at Sep. 2020"
Nov. 2018	**National Scholarship, China**: "Highest level scholarship for students in China" (rate $\approx 0.2\%$)
Dec. 2017	**Excellent Graduate Student, Xidian University**
Nov. 2017	**National Scholarship, China**: "Highest level scholarship for students in China" (rate $\approx 0.2\%$)

Recent Research Projects

NSF CAREER: "Generalizing Deep Learning for Wireless Communication" — *MESA Lab, SUNY Albany*

- Derived a High-order Generalized Mercer's Theorem (HOGMT) for non-stationary channels decomposition
- Proposed a unified characterization method for non-stationary channels
- Proposed a HOGMT based spatio-temporal precoding to cancel spatial, temporal and jointly spatio-temporal interference

June. 2021 - Present

NSF SWIFT: "Collaborative RFI Cancellation for Radio Astronomy" — *MESA Lab, SUNY Albany*

- Ongoing work on modeling the autoencoder for RFI cancellation at telescope with shared RFI from the base station
- Ongoing work on the nonlinear expression for the RFI sharing by Bussgang theorem

June. 2022 - Present

NSF SWIFT: "SCISRS: Signal Cancellation using Intelligent Surfaces for Radio Astronomy Services" — *MESA Lab, SUNY Albany*

- Proposed a phase and energy solution for RIS elements to cancel RFI
- Proposed a error bound for the given location error

Apr. 2022 - Present

NSF Collaborative Research: RI: Medium: " Robust Assembly of Compliant Modular Robots" — *Weifu Wang's Lab, SUNY Albany*

- Defined the point-edge contact model for peg-in-hole problem
- Proposed an optimization for error-tolerating peg and socket joints with respect to insertion and stability.

Apr. 2019 - 2021

Highlights

- Invited to presenting my work at the Special Technical Session in IEEE ICC 2022
- Assisted in preparing the funded project NSF SWIFT No. 2229497
- Reviewer of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- Reviewer of International Conference on Computer Science and Application Engineering (CSAE)

Experience

Research Assistant

MESA Lab, University at Albany, SUNY — 2021-Present

Focus on Precoding, Non-stationary Channel, Channel Decomposition, RFI Cancellation, RIS, Autoencoder

Research Assistant

Weifu Wang's Lab, University at Albany, SUNY — 2019-2021

Focus on Robotics, Block Optimization

Research Assistant

Liping Song's Lab, Xidian University — 2016-2019

Focus on Target Tracking, Random Finite Sets Theory, Box-Particle Filter

Technical Skills

Programming Matlab, Julia, Python

Languages English, Chinese (Native)

References

- Prof. Aveek Dutta
  Ph. D, Assistant Professor, University at Albany SUNY, Albany, NY, USA
  +1(518)442-5083 adutta@albany.edu
- Prof. Dola Saha
  Ph. D, Assistant Professor, University at Albany SUNY, Albany, NY, USA
  +1(518)442-5082 dsaha@albany.edu