Shuche Wang

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Gender : Male, Birth : 13-Jul-1995

Bio. I received the B.Eng. and M.Sc. degree in information and communication engineering from Beijing University of Posts and Telecommunications, Beijing, China, in 2017 and 2020 respectively. I am a research assistant at the University of Virginia from 2020 to 2021 under the supervision of Farzad Farnoud. From Jan. 2022, I am pursuing the Ph.D. degree with Institute of Operations Research and Analytics, National University of Singapore.

Education & Practice

Jan. 2022 – Present	**PhD in Operations Research and Analytics** *National University of Singapore* Institute of Operations Research and Analytics
Aug. 2020 – Jun. 2021	**PhD in Electrical and Computer Engineering** *University of Virginia* Electrical and Computer Engineering Departments *Advisor :* Prof. Farzad Farnoud
Sep. 2017 – Jun. 2020	**M.Sc (Honored) in Information and Communication Engineering** *Beijing University of Posts and Telecommunications (BUPT)* Key Laboratory of Universal Wireless Communications, Ministry of Education
Sep. 2013 – Jun. 2017	**Bachelor of Information Engineering** *Beijing University of Posts and Telecommunications (BUPT)* School of Information and Communication Engineering

Publications

1. **Shuche Wang**, Sima Jin and Farzad Farnoud "Non-binary Codes for Correcting a Burst of at Most 2 Deletions," *IEEE International Symposium on Information Theory (ISIT),* July 2021.
   Error Correcting Code | Burst of Deletions | Non-binary Codes
2. **Shuche Wang**, Zhiqiang He, Yue Rong "Joint Transceiver Optimization for DF Multicasting MIMO Relay Systems with Wireless Information and Power Transfer," *IEEE Transactions on Communication,* vol. 69, pp. 4953-4967, Jul. 2021.
   MIMO-relay | Simultaneous wireless information and power transfer | Multicasting
3. **Shuche Wang**, Zhiqiang He, Kai Niu, Peng Chen, Yue Rong, "New Results on Joint Channel and Impulsive Noise Estimation and Tracking in Underwater Acoustic OFDM Systems," *IEEE Transactions on Wireless Communication,* vol. 19, pp. 2601-2612, Apr. 2020.
   Dynamic time-varying channel estimation | OFDM | Joint channel estimation and detection
4. **Shuche Wang**, Zhiqiang He, Kai Niu, Peng Chen, Yue Rong "A Sparse Bayesian Learning Based Joint Channel and Impulsive Noise Estimation Algorithm for Underwater Acoustic OFDM Systems," *Proc. MTS/IEEE OCEANS*, Kobe, Japan, May 28-31, 2018.
   Sparse channel estimation | OFDM | Impulsive noise mitigation
5. Shuyi Wu, **Shuche Wang**, Zhiqiang He, Kai Niu, Yue Rong "An Approximate Message Passing Algorithm for Channel and Impulsive Noise Estimation in Underwater Acoustic OFDM Systems," *Proc. MTS/IEEE OCEANS*, Marseille, France, June 17-20, 2019.
   Channel estimation | AMP

Skills

Programming skills :	C/C++, MATLAB, LaTeX.
Language skills :	**TOEFL iBT** 103 : 28(Reading)+28(Listening)+22(Speaking)+25(Writing) **GRE** 153(Verbal)+167(Quantitative)+3.0(Writing)

Projects & Experiences

Dec. 2021 – Aug. 2020 | **Non-binary code for correcting a burst of at most t deletions**

- Propose non-binary codes for correcting a burst of at most 2 deletions with redundancy $\log n + O(\log n \log n)$.
- Propose non-binary codes for correcting a burst of at most t deletions with redundancy $\log n + O(\log n \log n)$.
- Propose permutation codes for correcting a burst of at most t deletions with redundancy $\log n + O(\log n \log n)$.

Feb. 2019 – Jul. 2017 | **New channel estimation, tracking and equalization algorithms for real-time high-speed underwater acoustic communication systems, Australian Research Council Discovery Project**

- Propose the joint channel and impulsive noise estimation algorithm based on Sparse Bayesian Learning;
- Propose the dynamic time-varying channel tracking and joint data detection and channel estimation method.

May. 2019 – Oct. 2018 | **Research for MIMO relay system with simultaneous wireless information and power transfer**

- Investigate a dual-hop decode-and-forward (DF) multicasting MIMO relay system;
- Propose a novel time-switching (TS) based protocol;
- Jointly optimize the source and relay covariance matrices.

Aug. 2017 – Oct. 2016 | **LTE-A simulation platform construction, Rohde & Schwarz cooperation project**

- Build the downlink control channel.

Honors & Awards

2020 Outstanding Graduate Thesis at Beijing Univ. of Posts and Telecom.
2017 1st-Class Graduate Student Scholarship at Beijing Univ. of Posts and Telecom.
2016 Second Prize of The International Mathematical Contest in Modeling.
2015 Second Prize of The Contemporary Undergraduate Mathematical Contest in Modeling.
2014 Third Prize of Beijing mathematics contest for University Students.
2014 2nd-Class Undergraduate Student Scholarship at Beijing Univ. of Posts and Telecom. (<10%)