Peng ZHANG

Contact Information

Communications and Networks Cluster
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Research Interests

High Dimensional Statistical Signal Processing, Machine Learning, Random Matrix Theory, Lattice, Scheduling Algorithms

Education

Imperial College London, UK
Ph.D. in Electrical Engineering
Aug 2012 – Dec 2016
Thesis topic: Structured Sensing for Estimation of High Dimensional Data

Nanyang Technological University, Singapore
B.Eng. (First-Class Honors) in Electrical and Electronic Engineering
Aug 2007 – Jun 2011
GPA: 4.84/5.00 (Top 5%)

KTH Royal Institute of Technology, Sweden
School of Information and Communication Technology
Sep 2009 – Dec 2009
International Student Exchange Programme

Professional Experience

Scientist I, Institute for Infocomm Research, Singapore,
Sep 2016 – Current.

- Statistical signal processing and machine learning on physical layer security and network anomaly detection.
- Dynamic scheduling.

Graduate Student, Imperial College London, UK
Sep 2012 – Sep 2016.

- Advised by Dr. Cong LING and Dr. Sumei SUN and performed research in sparse signal processing, random matrix theory and lattice sampling.

Technical Supervisor, Imperial College London, UK
Oct 2013 – Jun 2015.

- Guided three Masters level projects on structured compressed sensing.

Research Attachment, Institute for Infocomm Research, Singapore,
Aug 2011 – Aug 2012.

- Advised by Dr. Sumei SUN and worked on the optimization of ADC quantization width considering energy consumption and system performance.

Industrial Attachment, Rockwell Automation, Singapore,
Jan 2010 – Jun 2010.

- Worked on software development (Perl Script) and control system improvement.

NTU President Research Scholar, NTU, Singapore
Undergraduate Research Experience on Campus (URECA) programme.
Aug 2008 – Jun 2009.

- Advised by Prof. Yong Liang GUAN and worked on non-contact human vital sign monitoring by UWB signal.

Honors and Awards

Agency for Science, Technology and Research (A*STAR) Graduate Scholarship (Overseas), Singapore
2012 – 2016

- Prestigious scholarship including tuition fees and monthly allowance

First Runner-up, Design and Innovation Project Competition, NTU, 2009

Dean's List and NTU President Research Scholar, NTU
2008 – 2011

- Dean's List for 4 years of undergraduate study

Ministry of Education Undergraduate Scholarship, Singapore
2007 – 2011

- Full scholarship including tuition fees and monthly allowance

Professional Activities

Reviewer for the following journals and conferences

- IEEE Transactions on Communications
- IEEE Transactions on Vehicular Technology
- IEEE Journal on Selected Areas in Communications
- IEEE Transactions on Signal Processing
- IEEE Transactions on Information Theory
- IEEE International Conference on Communications
- IEEE International Symposium for Information Theory
- IEEE Information Theory Workshop
- IEEE International Conference on Communication Systems

Key Publications

Peng Zhang, Lu Gan, Cong Ling, and Sumei Sun, "Uniform Recovery Bounds for Structured Random Matrices in Corrupted Compressed Sensing," *IEEE Trans. Signal Process, submitted.*

Shudong Liu, Sumei Sun, Peng Hui Tan, Ernest Kurniawan and **Peng Zhang**, "Dynamic Scheduling for Pickup and Delivery with Time Windows," *IEEE World Forum on Internet of Things, 2018, accepted.*

Peng Zhang and Sumei Sun, "Decentralized Network Anomaly Detection via A Riemannian Cluster Approach," *IEEE Globecom, 2017, accepted.*

Shudong Liu, Ernest Kurniawan, Peng Hui Tan, **Peng Zhang**, Sumei Sun and Ye Sarah, "Dynamic Scheduling for Heterogeneous Resources with Time Windows and Precedence Relation," *IEEE Region Ten Conference (TEN-*

CON), 2017, accepted.

Peng Zhang, Lu Gan, Cong Ling, and Sumei Sun, "Atomic Norm Denoising-Based Joint Channel Estimation and Faulty Antenna Detection for Massive MIMO," *IEEE Transactions on Vehicular Technology, accepted.*

Peng Zhang, Lu Gan, Sumei Sun, and Cong Ling,"Modulated Unit-Norm Tight Frames for Compressed Sensing," *IEEE Trans. Signal Process.*, vol. 63, no. 15, pp. 3974-3985, Aug. 2015. (poster presented at UCL-Duke workshop on Sensing and Analysis of High-Dimensional Data 2014.)

Peng Zhang, Lu Gan, Sumei Sun, and Cong Ling, "Atomic Norm Denoising-based Channel Estimation for Massive Multiuser MIMO Systems," *IEEE International Conference on Communications 2015.*

Peng Zhang, Sumei Sun, and Cong Ling,"Variable-Density Sampling on the Dual Lattice," *IEEE International Symposium for Information Theory 2014.*

Peng Zhang, Lu Gan, Sumei Sun and Cong Ling, "Deterministic sequences for compressive MIMO channel estimation," (invited paper) *European Signal Processing Conference 2013.*