Wenqing Zheng

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Education

Ph.D. Electrical and Computer Engineering   Since Aug. 2018
The University of Texas at Austin   GPA: 3.83
Academic Track: Decision, Information, and Communications Engineering (DICE)

B.S. in Telecommunications Engineering   Jun. 2018
Beijing University of Posts and Telecommunications   GPA: 3.89, *summa cum laude*

Research Experience

Deep Learning Research Assistant,   *UT Austin,*   Aug.2018 – Present
Selected Projects:

Vision-Based Decentralized Controllers for UAV Swarms
- Participate in Army Research Lab project; refine inter-communication to help end-to-end training; implement distributed beamforming with UAV flocks (to be done);

Joint User Position and Channel Estimation
- Channel modeling and signal processing for hybrid MIMO architecture; Estimate user position with compressive sensing and deep learning;

Video Assisted Vehicle Ego-Motion Tracking
- Address the vehicle self-motion tracking problem with monocular camera video input. Implemented unsupervised conv nets UnDEMoN and optical flow based methods FlowNetS.

Learning to learn with Symbolic distillation
- Improve swarm-based *Learning to Learn* algorithm; distill the learned Graph network model into symbolic expression with better generalization and scalability;

Computer Vision Research Assistant,   *BUPT,*   Sept.2015 – Feb.2016
- Proposed a novel image quality assessment (IQA) algorithm based on Markov-Constrained Fuzzy C-Means clustering and information entropy.

Internship Experience

Reinforcement Learning Research Intern
GEIRI North America,   *San Jose, CA,*   May.2020 – Aug.2020
- Participate in NeurIPS 2020 challenge "Learning to Run Power Network" to tackle RL with huge discrete action space;
- Train a Soft Actor-Critic based agent to make discrete decisions, using Monte Carlo Tree Search and action space representation to guide exploration and exploitation.

Publications

- Xu Y., **Zheng W.**, Qi J., et al. Blind Image Blur Assessment Based on Markov-Constrained FCM and Blur Entropy, 2019 IEEE International Conference on Image Processing (ICIP). IEEE, 2019: 4519-4523.
- **Wenqing Zheng**, Nuria Gonzalez-Prelcic, Joint position, orientation and channel estimation in hybrid mmWave MIMO systems, Asilomar2019
- **Wenqing Zheng**, Anum Ali, Nuria Gonzalez-Prelcic, Robert W. Heath Jr. and Ehsan

Moradi, 5G V2X communication at millimeter wave: rate maps and use cases, VTC2020
- H. Yang, J. Zhao, **W. Zheng**, J. Yu, Large Data Throughput Optimization Model with Full order C moment Model Parallel Flow Number Prediction Optical Domain, *TELKOMNIKA*, Vol.14, No.2A, June 2016, pp. 10~17.
- **Wenqing Zheng**, Wenjun Xu, *et al.*, A New Cyclic Cumulants Based Doppler Estimation Method in UAV Channels, *Chinese Patent, 2019.*

Mathematical / Programming Skills

Programming Skills:
- Python (Pytorch, Tensorflow, Scikit-learn), JAVA, C++, MATLAB, R, Latex;
- Fluent with TB-level data processing under Linux environment.

Math background/Machine Learning Tools:
- Statistical machine learning, Deep Learning, Reinforcement Learning, Signal Processing;
- Probability & Stochastic Process, (Non-)Convex Optimization.

Problem-Solving and Entrepreneurial Skills:
- Think creatively; strongly desired and skilled to test out and iterate new ideas rapidly;
- Adept at identifying goals, establishing a reasonable timeline and anticipate possible challenges;
- Apt at building consensus among group discussions and delivering presentations.

Honors

- **First prize** in Chinese National Undergraduate Mathematical Contest (30 out of 8k)
- **Champion** in China Next-Generation Network Innovation Contest (out of 300 teams)
- Honorable Mention in MCM/ICM Contest
- Undergrad national first-class scholarship
- **First prize** in the National Physics Contest for College Students (5% out of 3k)