

QI SHE

174 Old Graduate College, 88 College Road, Princeton University, NJ 08544, USA
+852 5627 4834 ◊ sheqi1991@gmail.com ◊ Web: sheqi.strikingly.com

Education

- Visiting Student Research Collaborator, *Princeton University*** April. 2017 - Present
In Center for Statistics & Machine Learning, Princeton Neuroscience Institute
Advisor: [Prof. Jonathan Pillow](#)
- Ph.D., *City University of Hong Kong (CityU)*** Sept. 2014 - Present
Major in Electronic Engineering (**Best EE Dept. in HK, with 15 full professors as IEEE Fellows**)
Top 1 for GPA, Advisor: [Prof. Rosa H.M. Chan](#), Funded by University Grants Committee
- Visiting Student, *Peking University*** Nov. 2013 - March. 2014
In Department of Information Engineering
- B.Eng., *Nanjing University of Posts and Telecommunications*** Sept. 2010 - June 2014
Major in Information Engineering, **GPA: 93/100, within 1% (2/230)**

Research Interests and Skills

- | | |
|---------------------------|---|
| Research Interests | Developing statistical machine learning methods, including dynamical systems, dimensionality reduction, convex optimization, and functional connectivity for neural systems |
| Programming | Python == MATLAB > R == C/C++ |

Research Publications/Under Review

1. **Qi She**, Yuan Gao, Rosa H.M. Chan, “*Reduced-Rank Linear Dynamical Systems*” AAAI, 2018, accepted (**acceptance rate 24%, 933/3900**)
2. Yuan Gao, **Qi She**, Jiayi Ma, Mingbo Zhao, Wei Liu, Alan L. Yuille, “*CCA-CNN: Layer-Wise Multi-Task Feature Fusing in CNN with Canonical Correlation Analysis*” CVPR 2018, submitted
3. **Qi She**, Scott Linderman, Jonathan Pillow, “*Flexible and Interpretable Latent Structure Discovery from Multi-neuron Recordings*” Neural Computation, Under Review
4. **Qi She**, Beth Jelfs, Rosa H.M. Chan, “*Modeling Short Over-Dispersed Spike-Train Data: A Hierarchical Parametric Empirical Bayes Framework*” IEEE Transactions on Neural Networks and Learning Systems, Under Review (minor revision)
5. **Qi She**, Ka Yan So, and Rosa H. M. Chan “*Effective Connectivity Matrix for Neural Ensembles*” Proceedings of Annual International Conference of the IEEE EMBS, pp 1612-1615, 2016
6. Ka Yan So, Lingling Yang, **Qi She**, Wai Ho Savio Wong, Joe Mak, Rosa H. M. Chan “*Cross-Frequency Information Transfer from EEG to EMG in Grasping*,” Proceedings of Annual International Conference of the IEEE EMBS, pp 4531-4534, 2016
7. **Qi She**, Guanrong Chen, and Rosa H. M. Chan “*Evaluating the Small-World-Ness of a Sampled Network: Functional Connectivity of Entorhinal-Hippocampal Circuitry*” Scientific Reports 6, 2016 (**JCR Q1, IF: 5.228, a Nature series journal**)
8. **Qi She**, Ka Yan So, and Rosa H. M. Chan “*Reconstruction of Neural Network Topology Using Spike Train Data: Small-World Features of Hippocampal Network*” Proceedings of Annual International Conference of the IEEE EMBS, pp 2506-2509, 2015 (**Oral presentation**)

9. X Hu, S Chakravarty, *Qi She*, B Wang “A Modified Hierarchical Graph Cut Based Video Segmentation Approach for High Frame Rate Video” IS&T/SPIE Electronic Imaging, 86610V-86610V-11,2013

Research Projects

Bayesian Time-varying Latent Structure Discovery from Multi-neuron Recordings

Oct. 2016 - Current

- Recovering underlying structure of neural circuits
- Incorporating time-varying network structure and coupling strength
- Developing novel Bayesian inference method for count process

Generalized Linear Dynamical System with Reduced-Rank Latent Structure

Apr. 2016 - Sept. 2016

- Studying unknown factors in a latent network to modulate neural spiking activities
- Inference and learning a linear dynamical system with limited Poisson observations
- Predicting spiking activities with environmental stimuli more accurately than the benchmark method

Modeling Short Over-Dispersed Spike-Train Data Using Empirical Bayes

Sept. 2015 - Apr. 2016

- Modeling short over-dispersed spike count data
- Integrating Generalized Linear Models and empirical Bayes
- Proposed model outperforms both standard Poisson and Negative Binomial GLMs

Developing Effective Connectivity Matrix for Neural Ensembles

Nov. 2015 - Mar. 2016

- Studying the directional interactions within the multiple-input multiple-output (MIMO) neural network
- Developing an efficient Generalized Linear Model with Laguerre basis functions
- Solving the common-input problem and recovering the causality among random neural networks

Evaluating Small-World-Ness of a Sampled Network: Functional Connectivity of Entorhinal-Hippocampal Circuitry

Dec. 2014 - Aug. 2015

- Investigating neural dynamics and underlying network topology in nervous system
- Deriving a data-driven input-output model from the neural data, before proceeding to look into behavior
- Providing a general rule to make adjustments on the small-world-ness feature from the sampled network

Reconstructing Sparse Neural Functional Connectivity using Penalized Likelihood Estimation and Basis Functions

June 2014 - Dec. 2014

- Learning functional connectivity in large-scale cells assemblies
- Developing a modified Generalized Linear Model (GLM) with L1 norm penalty and Laguerre basis functions
- Analysis of the reconstructed network showed the neural network demonstrated significant small-world features

Academic Talks

1. “Explicit and Implicit Networks of Neural Ensembles”, Poster presentation of Research Symposium for MSc and Research Students in City U., Nov. 2016
2. “Effective Connectivity Matrix for Neural Ensembles”, Oral presentation of the 8th Annual Student Competition of IEEE-EMBS HK-Macau Joint Chapter, Aug. 2016

3. “Evaluating the Small-World-Ness of a Sampled Network”, Seminar Series on Complex Systems, Networks, Control and Applications, Mar. 2016
4. “Reconstruction of Neural Network Topology Using Spike Train Data: Small-World Features of Hippocampal Network”, Oral presentation of International Conference of the IEEE EMBS, Aug. 2015.

Professional Experience

Teaching Assistant	Systems and Control; City U. (EE3114 undergrad); Spring 2015, 2016 Brain Machine Interface; City U. (GE1322 undergrad); Fall 2015, 2016
Research Assistant	City U. and Chinese U. of Hong Kong; Fall 2014 Peking U. Nano-electronic Lab; Spring 2014
Reviewer	<i>IJCAI2017</i> , <i>PLOS one</i> , and <i>EMBC 2017</i>
Editorial board member	<i>Journal of Brain and Nervous System Current Research</i>

Professional Competitions

“**Global AI Hackathon: Artificial Intelligence for Social Care**”, IBM Watson, Creative Korea 2016, Seoul, Dec. 2016

Selected Awards and Honors

2nd prize in 10th Global Artificial Intelligence Hackathon by Korea ministry of ICT	Dec. 2016
Research Tuition Scholarship	Sept. 2016
Outstanding Academic Performance Award	Sept. 2016
IEEE EMBS Hong Kong-Macau Joint Chapter 2016 Student Competition-Finalist	Aug. 2016
UGC-funded Studentship, City U., HK	Sept. - Aug. 2018
Excellent Graduates Project (1/233), NUPT	June 2014
Excellent Graduates (Top 1%), NUPT	June 2014
Hengtong Group 1 st Prize Industry Scholarship (Top 1%), Hengtong Group, NUPT	Sept. 2013
1st Prize of National Undergraduate Mathematical Modeling Competition	Sept. 2013
Best Student Award (Top 5%), NUPT	Sept. 2013
2 nd Class Scholarship (Top 5%), NUPT	Sept. 2013
1 st Prize of TI Electronic Design Contest (Top 30 %)	May 2013
2 nd Prize of Mobile Phone App Development and Innovation Contest, NUPT	Dec. 2012
Excellent Student Leader (Top 3 %), NUPT	Sept. 2012
2 nd Class Scholarship (Top 5%), NUPT	Sept. 2012
2 nd Prize of Freescale Intelligent Car Design Competition (Top 10%), Jiangsu Province	May 2012
Fujitsu First Prize Industry Scholarship (Top 1 %), Fujitsu of Jiangsu Province	Sept. 2011
Best Student Award (Top 1%), NUPT	Sept. 2011
1 st Class Scholarship (Top 3%), NUPT	Sept. 2011

Internship/Position

Technical Support Engineer June 2011 - Sept. 2011
China Mobile Communications Corp. of Jiangsu (45 working hours/week), China

- Volunteer to assist in the product technical support of mobile phones and broadband services. Work closely with other engineers to discuss product specifications.

President of Student Union May 2012 - May 2013
College of Optoelectronic Information Engineering, NUPT

- A Welcome Party for the Freshmen was awarded as the top10 activities in NUPT, 2012.
- Organize the athletes to attend the sports meeting in NUPT, and won the Excellent Group Award.

- Hold Optoelectronic Carnival, set up a communication platform between faculties and students.

Related courses

Advanced mathematics (**100/100**; Bachelor)
Linear Algebra and Analytic Geometry (**100/100**; Bachelor)
Probability and Stochastic Process(**100/100**; Bachelor)
University Physics 1 (**95/100**; Bachelor); University Physics 2(100/100; Bachelor);
Digital Signal Processing (**94/100**; Bachelor);
Machine Learning (**A+**; Ph.D.)
Complex Network: Modeling, Dynamics and Control (**A+**; Ph.D.)
Signal Processing (**A+**; Ph.D.)
Advanced in Signal Processing (**A**; Ph.D)

Referee

Prof. Jonathan Pillow

Associate Professor
Center for Statistics and Machine Learning
Princeton Neuroscience Institute
Dept. of Psychology
Princeton University
+1 609-258-7848
pillow@princeton.edu

Prof. Guanrong Chen

Chair Professor
Dept. of Electronic Engineering
City University of Hong Kong
IEEE Fellow
Highly Cited Researcher (H-Index: 135, Total: 80367)
Member, Academia Europaea
eegchen@cityu.edu.hk

Prof. Rosa H.M. Chan

Assistant Professor
Laboratory for computational neuroscience
Dept. of Electronic Engineering
City University of Hong Kong
rosachan@cityu.edu.hk

Declaration

I hereby declare that all the details furnished above are true to the best of my knowledge and belief.