Qi Xin

Curriculum Vitae

Email: xinqi0511@gmail.com
Tel: (+86) 1861-162-0155
205, School of Life Science, USTC
Hefei, Anhui, 230026, China

Education

School of Physical Sciences, University of Science and Technology of China (USTC) Sep 2014 – Present

Major in Biophysics

- GPA: 3.73/4.00 (Major: 3.84/4.00)
- Ranking: 1/13 (in Biophysics program, Class of 2018)
- Relevant Courses: Biophysics I (Computational Neuroscience) (A+), Computational Physics (Macromolecule Modeling) (A), Computational Methods (A+), Probability and Statistics (A+), Quantum Mechanics (A), Theoretical Mechanics (A), Principle of Neuroscience (Graduate-Level Course, A-), Cellular biology (in-progress), Biostatistics (in-progress), Mathematical Modeling of Biological Systems (in-progress)

Research Interests

(a) Statistical Neuroscience (b) Neural Network Dynamics (c) Decision-Making Models (d) Cellular and Synaptic Dynamics

Publication

1) **Stability of Empirical Point Process Spiking Neuron Models.** **Qi Xin***, Yu Chen* and Robert E. Kass. (In preparation for submitting to Special Issue: Statistical Analysis of Neural Data, Journal of Computational Neuroscience)
2) **Probing the flexibility of avoidance response in C. elegans.** Yuan Wang*, Xiaoqian Zhang*, **Qi Xin***, Fan Gao, Mark Alkema, Mei Zhen and Quan Wen. (In preparation. Conference poster available upon request)
   * Equal contribution

Research Experience

Neurostatistics Group, Carnegie Mellon University Jul 2017 – Sep 2017

Advisor: ***Prof. Robert Kass***

- Explored causes and proposed solutions for the divergence problem: statistical models of single neuron (GLMs) pass goodness-of-fit test but show unphysiological explosion firing rate in the simulation.
- Created methods to avoid divergence within the original framework: Outlier detection method and a look-up table approach which tells whether more data help.
- Built a new framework termed Scaling-GLMs that prevent inherent divergence from the original model.
- Developed a diagnosis method that evaluates the stability of a model quickly with high accuracy.

Laboratory of Computational Neuroscience of Small Animals, USTC Jan 2017 – Nov 2017

Advisor: ***Prof. Quan Wen***

- Established a biophysical model based on the wiring diagram of C.elegans to explain the statistical patterns of the worm's locomotive behavior.
- Demonstrated that the model predicts calcium signals as well as the new behavior patterns of worms under

different experimental manipulation (genetic mutation, opto-genetic activation, laser ablation)

- Analytically solved the rate of jumping from one stable state into another in a simplified neural network model.
- Reproduced the experimental reversal length distribution with computer simulation on the neural network.

Laboratory of Neurophysics and Neurophysiology, USTC Jan 2016 – Apr 2017

Advisor: ***Prof. Guoqiang Bi***

- Tested different permeable substrates binding the brain slices to preserve the sample as well as speed up the sample preparing process.
- Conducted imaging of mouse brain sample with a new developed fast laser scanning microscopy to optimize protocols for sample preparation.
- Performed immuno-staining and operated confocal microscopy to test the specificity of different antibodies.

Laboratory of Solid Waste Recovering with Biotech, Beijing Institute of Technology Jul 2012 – May 2013

Advisor: ***Prof. Shi Chen***

- Got a bioleaching system to extract Nickel slag with the efficiency of 90%, up from 40% previously reported.
- Concluded that the direct contact between bacteria and slag was crucial to the high efficiency of Ni extraction.
- Won the first place in China Adolescents Science and Technology Innovation Contest and was selected to Intel Science and Engineering Fair (3 out of 20,000).

Awards

- National Outstanding Student Scholarship from Ministry of Education 2017 (12 out of 320)
- Outstanding Student Scholarship, USTC 2015 and 2016
- the 7th place of Electromagnetic Thesis Competition, USTC 2015 (7 out of 800)
- the 11th place of Optical Thesis Competition, USTC 2016 (11 out of 500)
- Second prize of Thesis Competition of Research Experiment USTC 2016 (20 out of 600)
- Intel Youth Talent Award 2013 (20 out of 20,000)
- President Award of China Association for Science and Technology 2013 (3 out of 20,000)

Additional Skills

- Programming Languages: Matlab, Python, C/C++, Mathematica, HTML
- Word Processing and Graphic Design Softwares: Latex, Microsoft Office, Adobe Illustrator
- Engineering Applications: Solidworks, Arduino

Community Service

Vice-President, Psychological Association of USTC Sep 2015 – Jun 2017

- Organized Psychological Education Week titled ‘Cherish Your Life’, involving more than 20 personnel and more than 1,000 participants.
- Designed and put up more than 20 posters to publicize Psychological Association.

Director, Society of Psychological Class Committees, School of Physics, USTC Sep 2015 – Jun 2017

- Organized Thanksgiving activities including delivering gratitude letters and thankyou cards to professors around the campus.
- Oversight the performance of all Psychological Class Committees in each class.