Xuqing Zhou

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Education

Hong Kong University of Science and Technology (HKUST) Hong Kong
BS in Biochemistry and Cell Biology 09/2012-11/2016

- University Scholarship in 2012; Second Class Honor, Division II in 2016
- Coursework: Calculus, Multi-variable Calculus, Linear Algebra, Differential Equations, Computational Thinking, Introduction To Computer Science, Great Idea in Science
- Computer：Matlab, R, Linux, Python, Numpy, Theano, Keras, C, C++

Research

Segmenting MRI Image of Prostate Gland by Deep Neural Network
Department of Computer Science, Wuhan University 12/2016-07/2017

- Learned basic knowledge and methodology in the field of computer vision and deep learning through the open course *Machine Learning* (Stanford CS229, Andrew Ng)
- Established software environment (Keras) for deep learning
- Browsed traditional and mainstream methods for image recognition, image segmentation and deep learning
- Constructed, trained and optimized an end-to-end U-net for the segmentation of prostate gland MRI image

Categorizing Cancer Samples Based on Genetic Features (Capstone Project Report)
Department of Life Science, HKUST 09/2015-06/2016

- Browsed articles related to cancer categorization, single nucleotide polymorphism (SNP), homozygocity and mutation signature
- Cleansed data collected from cancer patients and characterize it using data clustering
- Mapped discovered genetic features to clinical features and provided biological interpretation for such mapping

Comparing the Effect of Short-Term Depression and Spike-Frequency Adaptation in Continuous Attractor Neural Network (2014, Undergraduate Research Project Report)
Department of Physics, HKUST 09/2014-03/2015

- Identified two synergetic biological phenomena and their respective computational models – spike frequency adaptation (SFA) and short term depression (STD)
- Fused the models of SFA and STD with Continuous Attractor Neural Network (CANN)
- Characterized their difference in effect on CANN using phase diagram time line

Modeling Pre-Saccadic Elongation of Visual Receptive Field Using Continuous Attractor Neural Network (2014, Undergraduate Research Project Report)
Department of Physics, HKUST 03/2014-09/2014

- Browsed the book *Theoretical Neuroscience: Computational and Mathematical Modeling of Neural System* (Peter Dayan and L.F. Abbott) for a general, comprehensive view of the field of computational biology
- Learned basic characteristics of continuous attractor neural network (CANN) and biological research related to pre-saccadic elongation of visual receptive field of cells in LIP area
- Simulated basic CANN on Matlab
- Modified the construction of CANN to imitate the observed activity of cells in LIP area, proposed the construction as a possible biological model

Competition

International Genetically Engineered Machine Competition
Department of Life Science, HKUST 03/2013-07/2013

- Browsed wide range of advanced topics in the field of bioengineering, including bio-electrical cells, tissue regeneration and protein production
- Cooperated with peers, proposing the project of producing fructose using genetically engineered cyanobacteria, estimated its plausibility
- Learned wet-lab technics, assembled genetic bricks, cultured cell lines
- Presented our ideas to company leaders, doctors and professors for suggestions

Conference

- 2013 International Congress of Plant Pathology (student representative)