Shangran Qiu

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EDUCATION

Boston University, Boston, MA Sep. 2016 - Present
Phd Candidate, Physics GPA: 3.5/4.0

Xi'an Jiaotong University, Xian, Shaanxi, China Sep. 2012 - Jun. 2016
Bachelor of Science, Applied Physics (Elite Class) GPA: 3.6/4.0

Texas A&M University, College Station, TX Jan. 2015 - May. 2015
Exchange student, Physics and Astronomy GPA: 4.0/4.0

RESEARCH

Magnetic Resonance Image Super-Resolution by GAN (Pytorch) May.2018 - Now
Kolachalama Lab, Computational Biomedicine, Boston University School of Medicine

- Developed Super Resolution Imaging Networks (SREZ) using DCGAN (Deep Convolutional Generative Adversarial Network) and WGAN (Wasserstein Generative Adversarial Network)
- SREZ model was trained and tested on brain MRIs collected from ADNI dataset.

Alzheimer's Disease Diagnosis by Transfer Learning (Pytorch) Dec.2017 - Apr.2018
Kolachalama Lab, Computational Biomedicine, Boston University School of Medicine

- Modified original VGG model by adding dropout layers and batch normalization layers in each convolutional block to prevent overfitting.
- Trained the modified VGG model on NACC brain MRI dataset to classify two disease stages (**83.1%** accuracy) with transfer learning approach.
- Integrated the VGG model with 2 MLP (Multi-Layer Perceptron) models trained on clinical data and achieved an overall **90.9%** accuracy.

Anomaly Detection of Side-Channel Signals (Keras) Sept.2017 - Jan.2018
LISP, Computer Science, Boston University

- Pre-processed the raw side-channel signals such as power draw from different devices
- Trained MLP (Multi-Layer Perception) model to infer the ongoing computational task just from side-channel signals and achieved **90%** accuracy on multi-classes classification task.

Text Classification for ArXiv Dataset (Pytorch) May.2017 - Dec.2017
Boston University

- Extracted arXiv abstract text from web and implemented customized Word2Vec on arXiv dataset by continuous bag-of-words (CBOW) algorithm.
- Parsed sentences into grammatical tree by Stanford NLP parser and trained hierarchical tree LSTM to achieve text classification.

PAPERS

1. **S Qiu**, GH Chang, M Panagia, DM Gopal, R Au, VB Kolachalama, *Fusion of deep learning models of MRI scans, mini-mental state examination and logical memory test enhances diagnosis of mild cognitive impairment.* (Alzheimers Dement (Amst) 2018; 10: 737–749. Published online 2018 Sep 28. doi: 10.1016/j.dadm.2018.08.013)

2. GH Chang, DT Felson, **S Qiu**, TD Capellini, VB Kolachalama, *Predicting bilateral knee pain from MR imaging using deep neural networks* (bioRxiv, 463497)

3. X Wang, Q Zhou, J Harer, G Brown, **S Qiu**, Z Dou, CA Gonzalez, A Hinton, J Wang, P Chin, *Deep learning-based classification and anomaly detection of side-channel signals* (SPIE conference Paper 10630-6)

SKILLS

Machine Learning: Pytorch; Tensorflow; Keras
Programming: Python; SQL; R; Matlab; Linux; Swift(Basic); HTML(Basic)
Courses: Introduction to Stochastic Processes; Linear Models, Quantum Mechanics I & II, Statistical Mechanics I & II, Mathematical Physics

AWARDS

Siyuan Scholarship (Top 20 % in recognition of academic performance) 2014
Elite Student Award (Top 30 % in recognition of academic performance) 2014, 2013
Pengkang Scholarship (Top 10 % in recognition of academic performance) 2013