YANG PAN

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EDUCATION

Rice University Houston, Texas
Master of Computer Science *Aug. 2017 - Dec. 2018 (expected)*

Shanghai Jiao Tong University Shanghai, China
Bachelor of Science in Engineering, Automation *Sept. 2013 - June 2017*

RESEARCH EXPERIENCE

Research on Image Hashing and Retrieval Algorithms on Large Data Sets Shanghai, China
Department of Automation, Shanghai Jiao Tong University *Dec. 2016 - June 2017*

· Introduced additional constraints to the optimization problem of Latent Factor Hashing (LFH), and applied two-stage optimization method to maximize the penalized log-likelihood function.

· Added nonlinear features to enhance expressive power, and selected the optimal model using AIC.

· Experiments on CIFAR-10 and NUS-WIDE showed that the revised LFH achieved state-of-the-art performance.

Remote Sensing Laboratory Research Assistant Shanghai, China
Department of Automation, Shanghai Jiao Tong University *Dec. 2015 - Dec. 2016*

· Studied Rewarding Mechanism with its applications in Reinforcement Learning, and tested their validity.

· Studied STDP Mechanism and simulated Spiking Neural Networks on MATLAB to analyze network behaviors.

· Applied competitive learning rule (Winner-Take-All) to Self-Organizing Maps.

SELECTED PROJECTS

Reliable File Transfer and Intra-Domain Routing Protocols Houston, Texas
Supervised by Prof. T. S. Eugene Ng *Sept. 2017 – Nov. 2017*

· Designed and implemented a reliable file transfer protocol on unreliable network, using cyclic redundancy check and sliding window, which could deal with up to 95% packet loss, duplicate, delay, mangle, and reorder.

· Implemented link-state (LS) and distance-vector (DV) routing protocols in C++ for intra-domain routing.

Website HurriCare for Natrual Disaster Response and Recovery Houston, Texas
Project for HackRice 7 Event *Sept. 2017*

· A website that provides disaster-related information, and serves to allocate donations after a natural disaster.

· Designed an efficient matching algorithm to allocate donations, such that the needs of the victims from damaged areas are met to the maximum extent, and the transportation distance for distributing is kept to be short.

· Trained a KNN classifier using data extracted from Twitter messages to predict dangerous areas, and implemented an HTML webpage using Google Map API to display a map with markers indicaing these dangerous areas.

Handwriting Recognizer with Conditional Random Field Shanghai, China
Project of Probabilistic Graphical Models on Coursera *Apr. 2017 – May 2017*

· Built an inference system for undirected graphical models with belief propagation algorithm on clique tree.

· Modeled probelm with conditional random field, building potentials on raw pixels and consecutive character pairs.

· Implemented stochastic gradient descent to maximize the log-likelihood of the model, and achieved 82% accuracy.

Digits Recognizer with Multilayer Perceptron Shanghai, China
Supervised by Prof. Changchun Pan *Apr. 2016 – June 2016*

· Designed a robust image processing algorithm with OpenCV that could find and locate number digits on each frame of video streams quickly, even in a dark environment with irregular noises and target rotation.

· Constructed a multilayer perceptron in C++, and trained it to predict number digits with over 99% accuracy.

TECHNICAL STRENGTHS

Languages	Proficient in C/C++, Python; Comfortable with Haskell, MATLAB, Verilog
Platforms	Windows, macOS, Linux (Ubuntu)
Tools	PyTorch, Keras, scikit-learn, OpenCV, MySQL, LaTeX, Multisim