Qiying Mu

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EDUCATION

09/2016 – Present	**Rutgers University**	M.S. in Computer Science
09/2011 – 07/2014	**Chinese Academy of Sciences**	M. Eng. in Computer Engineering
09/2007 – 07/2011	**Harbin Institute of Technology**	B.Eng. in Electronic Science and Technology

INDUSTRY EXPERIENCE

07/2014 – 03/2015 **Computer-Aided Design Engineer** *(Full-time)***, NVIDIA, Shanghai, China**

- Built an automated development platform, automated the process of building and validating compiled memory instances, wrote automated flows on the platform
- Wrote compiler timing scripts to create compiler characterization database, including timing models and other text files, simplified the process of performing compiler timing
- Achieved a deep understanding on High Performance Computing and GPU programming

10/2013 – 02/2014 **Data Mining Research Intern, BaiDu Inc., Beijing, China**

- Implemented an online service system based on Machine Learning and Data Mining
- Applied Apriori, K-means algorithm and Hierarchical Clustering to do Text Mining
- Analyzed parameters in logs and implemented algorithms on a Distributed Computing Platform

02/2013 – 05/2013 **Software Development Intern, AMD, Beijing, China**

- Created sequences and maximized functional coverage by randomizing data items using constraints
- Built an auto-workflow which could enable submitting jobs repeatedly

09/2012 – 11/2012 **Natural Language Processing(NLP) Research Intern, Sogou Inc., Beijing, China**

- Conducted research on NLP, focused on Maximum Entropy algorithm
- Proposed and implemented two fast algorithms for training and execution based on Selective Gain Computation(SGC) algorithm and Sparse Feature for Maximum Entropy Model

RESEARCH EXPERIENCE

09/2016 – Present **Research Assistant, Rutgers University**

- Conducted research on Deep Learning,Database,Information Retrieval,CUDA,Systems,Network

01/2013 – 07/2014 **Shallow Parsing and Sentence Retrieval based on NLP, Chinese Academy of Sciences(CAS)**

- Conducted research on shallow parsing, mainly focused on Sentence Boundary Detection, Tokenization, Part-of-Speech Tagging(POST), Stemming, as well as Morphological Normalization
- Reduced Segmentation Ambiguity by K-Shortest-Path-Routing algorithm
- Did research on Sentence Retrieval including Language Model and Probabilistic Retrieval Model
- Did research on Novelty Detection, focused on Word Overlapping and Information Enhancement

01/2013 – 02/2013 **Named Entity Recognition(NER) based on Deep Learning, CAS**

- Classified named entities based on Deep Neural Network
- Implemented visualization based on t-Distributed Stochastic Neighbor Embedding

11/2012 – 05/2013 **Speech Recognition System based on Deep Learning, CAS**

- Built a Deep Auto-encoder fed with Mel-Frequency Cepstrum Coefficient(MFCC) feature
- Trained the Deep Auto-encoder with Deep Belief Network(DBN), tuned the network with Back Propagation algorithm, extracted robust speech feature and accelerated by Parallel Training
- Built a speech model based on Deep Neural Network-Hidden Markov Model(DNN-HMM)

10/2012 – 11/2012 **Neural Network Classifier based on Data Mining, CAS**

- Implemented Back Propagation algorithm, optimized neural network with Simulated Annealing(SA) algorithm, Genetic algorithm and Particle Swarm Optimization(PSO)
- Improved convergence rate and converged neural network to a global optimal solution

07/2012 – 05/2014 **Image Processing based on High Performance Computing, CAS**

- Preserved image boundary efficiently by jointing Non-Local Means(NLM) algorithm with the steering kernel in Kernel Regression(KR), improved Peak Signal to Noise Ratio(PSNR) by 2.5dB
- Reduced computation complexity by jointing NLM algorithm with Approximate K-Nearest Neighbors(AKNN) algorithm, implemented the algorithm on GPU, accelerated processing speed
- Conducted research on Image Enhancement, Image Segmentation and 3D Reconstruction

02/2012 – 06/2012   **Face Recognition System based on Deep Learning, CAS**
- Did research on dimension reduction methods including Principal Component Analysis(PCA), Independent Component Analysis(ICA) and Linear Discriminant Analysis(LDA)
- Accelerated recognition by jointing subspace methods with Affinity Propagation(AP), jointing PCA with Restricted Boltzmann Machine(RBM), tested the system on a standard database

01/2012 – 02/2012   **Handwritten Digits Recognition based on Statistics and Machine Learning, CAS**
- Preprocessed images and adopted Radial Basis Function(RBF) kernel to train Support Vector Machine(SVM), implemented the algorithm on Matlab platform and tested it in MNIST
- The recognition accuracy arrived at 97% with the chosen optimal parameters –c 32 and –g 0.0031

10/2009 – 06/2011   **Pathogenicity Genes Prediction based on Data Mining, HIT**
- Conducted research on Bioinformatics and Text Mining, extracted Named Entities from Online Mendelian Inheritance in Man(OMIM) based on Medical Subject Headings(MeSH)
- Calculated disease phenotype similarity based on Vector Space and Semantic Analysis separately
- Refined and optimized the phenotype similarity based on Synsets from WordNet, implemented the Biological Modeling for Protein Interaction and Phenotype Interaction

PROJECT EXPERIENCE

09/2016 – 11/2016   **Story-based Retrieval based on NLP and Storygraphs, Rutgers University**
- Implemented text analysis for videos based on NLP
- Implemented sentiment analysis, video emotion analysis based on Storygraphs and Storytelling

09/2016 – 10/2016   **Heuristic Search using Information from Many Heuristics, Rutgers University**
- Generated discretized maps, and implemented Uniform-cost search, A* and Weighted A* algorithm
- Implemented Sequential Heuristic A* and Incremental Heuristic A* algorithm

03/2013 – 06/2013   **Collaborative Filtering Recommendation System based on Information Retrieval, CAS**
- Designed and implemented a parallel recommendation algorithm, implemented it on Multi-GPU
- Solved problems including parallel calculation for similarity, finding K-Nearest Neighbor, ranking prediction and Top-N recommendation

10/2012 – 01/2013   **Network Intrusion Detection System based on TCP/IP, CAS**
- Implemented system architecture, including network data packet obtainment, network protocol analysis, rules analysis, intrusion events detection, response module and memory module
- Conducted research on TCP, IP, UDP, ICMP

03/2012 – 06/2012   **Click-Through Prediction for Search Advertising System based on Data Mining, CAS**
- Implemented Online Bayesian Probit Regression, SVM and Maximum Likelihood Estimation
- Proposed and implemented a filter which could filter out features that did not exist in the test database, accelerated training process for classification model without loss of performance

TEACHING EXPERIENCE

09/2016 – 12/2016   **Teaching Assistant for CS 344 (Design & Analysis of Computer Algorithms), Rutgers University**
- Implemented recitation and instructed programming exercises

03/2012 – 06/2012   **Teaching Assistant for Parallel Process, CAS**

LEADERSHIP

09/2012 – 03/2014   President, Machine Learning & High-Performance Computing Club, CAS

HONORS & SKILLS

Rutgers University Research/Teaching Assistant, Chinese Academy of Sciences Research/TA

Python,C++,Java,Matlab;Deep Learning,Database,Information Retrieval,CUDA,NLP,Network,System