JINZHEN WANG

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EDUCATION

New Jersey Institute of Technology Newark, New Jersey, US

Sep 2017 – Now Ph.D. Electrical Engineering

New Jersey Institute of Technology Newark, New Jersey, US

Sept 2015 - May 2017 M.S. Electrical Engineering

- Relevant coursework:

Data Structure & Algorithms	R Programming
Computational Intelligence	Machine Learning

Shandong University Jinan, Shandong, China

Sept 2011 - Jul 2015 B.S. Internet of Things (Electrical Engineering)

- Relevant coursework:

Database System	Operating System
Data Structure	Computer System Architecture

RESEARCH EXPERIENCE

Brookhaven National Laboratory Upton, New York, US

Robust and scalable deep learning for X-ray synchrotron image analysis June 2017 – August 2017

1. Project Overview: Build automatic machine learning pipelines for data analysis tasks
   a. Data augmentation for robust learning
   b. ConvNet learning with high-resolution images
   c. TensorFlow for model integration and fast GPU computation
   d. Streaming to TensorFlow
2. My contribution:
   a. Integration of Scikit-learn based programs into TensorFlow framework.
   b. Designed and implemented an end-to-end parallelization system to speed up previous scientific image data processing and classification system. The parallelization system utilizes multiple-GPU system to perform distributed data-parallelization computation for image CNN training which gains linear speedup from CPU architecture.

New Jersey Institute of Technology Newark, New Jersey, US

Implementation of Collaborative Filtering Techniques for Movie Recommendation June 2016 – July 2016

Advisor: Dr. Christopher Markson

1. Implemented a movie recommendation system based on Collaborative Filtering Techniques.
2. Retrieved the data of movie ratings from IMDB.
3. Implemented recommendation using both user-based and item-based approaches.
4. Used matrix factorization to discover the latent features from user-movie rating data.
5. Compared the recommendation results of both user-based and item-based approaches.

Sound Source Localization Using Microphone Arrays January 2016 – May2016

Advisor: Dr. Ali Abdi

1. Built an 8-microphone array that is connected to NI high speed A/D converter to collect and digitize the signals.
2. Processed data with MATLAB program to get the TDOA (time difference of arrival) among all channels of signals.
3. Used SI/ML (hybrid spherical interpolation/maximum likelihood) algorithm to estimate the source location and compare the estimation

results with actual signal location and minimize the distance error.

Shandong University Jinan, Shandong, China

Bats Motion Reconstruction and Feature Extraction (Research & Senior Design Thesis) November 2013 – June 2015

Advisor: Dr. Hui Chen, Dr. Rolf Mueller

1. Designed bats flight test tunnel based on previous experiments. Conducted flight tunnel validation, multi-camera calibration tests, multi-camera synchronization tests.
2. Conducted bats flight experiments including marking on bats' wings using fluorescent points, videotaping flights using high-speed cameras.
3. Extracted fluorescent points in videos using digital image processing techniques and got the bats' motion characteristics between frames including wings' deformation and relative motion using sparse optical flow.
4. Simplified OpenCV corresponding functions based on Good Feature algorithm and thus made it more suitable for the problem (bats' motion feature extraction)
5. Developed CNN-based bat's body recognition system. It was a valuable practice to get to know the convolutional neural network and pattern recognition despite that we didn't earn much accuracy gain and the method wasn't adopted.

Publication

N. Meister et al., "Robust and scalable deep learning for X-ray synchrotron image analysis," 2017 New York Scientific Data Summit (NYSDS), New York, NY, 2017, pp. 1-6. doi: 10.1109/NYSDS.2017.8085045

Laboratory Experience

HPC Lab, New Jersey Institute of Technology February 2018 - Now

Computer Science Initiative, Brookhaven National Laboratory June 2017 – August 2017

Acoustic Laboratory, New Jersey Institute of Technology January 2016 – May2016

Shandong University – Virginia Tech International Joint Laboratory, Shandong University November 2013 – June 2015

Professional Activity

Reviewer of ICPP, Member of IEEE, Member of ACM

Skills

Programming language: C, Python, R, MATLAB, Java, SAS

Machine Learning framework: TensorFlow, Scikit-learn

Big Data System: Hadoop, Oozie, Spark

Cloud Computing Platform: Google Cloud Platform, Amazon Web Service, Azure