DUNG NGUYEN (DZUNG)

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Objective

Pursuing a research and development career in machine learning with application in computer vision and pervasive computing.

Working Experience

- **HERE Research –** Berkeley, CA   *Research intern, 07/2015 – 09/2015*
    - o Implemented a grammar-based texture rendering system for next generation 3D map using OpenGL and C++
- **Bigmarker.com** – Chicago, IL   *Research intern, 06/2013 - 09/2013*
    - o Implemented features of webinar recording system using Ruby and ffmpeg

Education

- **Northwestern University** – Evanston, IL

    Ph.D. in Electrical Engineering and Computer Science, 2010 - 2017
    - o Research topic: Machine learning in perceptual image analysis and pervasive computing
- **Hanoi University of Technology –** Hanoi, Vietnam

    B.S. in Electrical Engineering, June 2010

Research Experience: *Northwestern University*

- **Pervasive computing:**
    - o Designed and built a wearable necklace which monitors eating behavior
    - o Adapted dynamic programming algorithm (longest periodic subsequence) to mine periodic chewing sequences in two-weeks necklace's data with linear time complexity.
    - o Utilized recurrent neural networks (long short-term memory) to detect chewing and swallows from data, showing outperformance to traditional machine learning approach (random forest).
- **Semantic image analysis:**
    - o Integrated structured prediction (conditional random fields) and deep learning (fully convolutional neural network) for aerial image analysis.
- **Perceptual image retrieval:**
    - o Designed and implemented web-based crowdsourcing interfaces to collect subjective ground truth data
    - o Adapted metric learning (local Fisher discriminant analysis) to learn similarity metric from subjective data.

Publication

Dzung T. Nguyen, Eli Cohen and Nabil Alshurafa, *"SwallowNet: Recurrent neural network detects and characterizes eating patterns"*, IEEE PerCom Workshop on Pervasive Health technologies, 2017.

Dzung T. Nguyen, Shibo Zhang, Runsheng Xu and Nabil Alshurafa, *"Robust Sensing Platform for Detection of Chewing and Eating Episodes in the Wild"*, IEEE PerCom, 2018 (submitted).

Dzung T. Nguyen, Thrasyvoulos Pappas, *"Learning similarity metrics from ViSiProg"*, IEEE Transactions on Image Processing (submitted).

Teaching Experience

- **EECS 395 Machine learning: Foundations, Applications and Algorithms,** *Northwestern University*
- **EECS 213 Introduction to Computer Systems,** *Northwestern University*
- **EECS 202 Introduction to Electrical Engineering,** *Northwestern University*

Relevant Projects

- **Programming massively parallel processors with CUDA,** *Northwestern University, 2016:* Implemented CUDA backend for open-source nonuniform Fast Fourier transform (https://github.com/NFFT/nfft)
- **Operating system,** *Northwestern University, 2016:* worked with codebase of xv6, a simplified Unix operating system. Add lightweight threads, shared pages between processes and tagging capabilities for file systems.
- **Machine Learning,** *Northwestern University, 2011*: Use a back-propagation neural network to predict the movement direction of Dow Jones price index and the effect of news sentiment and global equities on the prediction (https://sites.google.com/site/eecs349stocks/)
- **Distributed Systems,** *Northwestern University, 2015:* Implemented a Kademlia distributed hash table in Golang.

Skills

- **Programming languages**: Python, C, C++, Javascript, Java, GoLang
- **Machine learning/Deep learning frameworks**: tensorflow, caffe, torch7, scikit-learn
- **System frameworks**: CUDA, OpenCV, Android

Awards and honors

- IEEE PerCom 2017 NSF Student Travel Grant Award
- Vietnam Education Foundation fellowship for graduate study, 2010

Reference

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