Wei Zhang

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Education

- **Columbia University** New York, NY, USA
  M.A.Sc., Electrical Engineering (Top 10%) *2016 - 2018*
  - Advisor: Prof. Peter Allen, Prof. Shih-Fu Chang
  - Courses: Machine Learning (A), Bayesian Model Machine Learning (A), Deep Learning for CV and NLP (A-), Big Data Analytics(A)
  - Selected course project: A Reduction from Bandit Feedback to Full Feedback for Non-Realizable Online Multi-Class Problem
- **University of Waterloo** Waterloo, ON, Canada
  B.A.Sc. Electrical Engineering (Top 15%) *2011-2016*
  - Advisor: Prof. Xueming(Sherman) Shen
  - Core Math Courses: 85/100
  - Fourth Year Design Project: Wearable Medical Device with focus on digital signal processing part

Publications

1. Tingyu Mao, Wei Zhang, Haoyu He, Yanjun Lin, Vinay Kale, Alexander Stein, Zoran Kostic "Traffic Surveillance Research," in NVIDIA Workshop at Computer Vision and Pattern Recognition (CVPR 2018)
2. Wei Zhang, Qinghua Shen, "Deep Learning for Blood Pressure from Photoplethysmography,"(2018), https://goo.gl/9Vp8xq
3. Xu Zhang, Felix Yu, Svebor Karaman, Wei Zhang, Shih-Fu Chang, "Heated-up Softmax Embedding,"(2017) Arxiv, https://arxiv.org/abs/1809.04157
4. Xiaosong Lan, Zhiwei Xiong, Wei Zhang, Shuxiao Li, Hongxing Chang and Wenjun Zeng, "A Super-Fast Online Face Tracking System for Video Surveillance," in International Symposium on Circuits and Systems (ISCAS), Montreal, Canada, May 22-26 2016.

Research Experience

- **Columbia Robotics Lab** Columbia University
  Advisor: Prof. Peter Allen *2018/05 - Present*
  - Conducted research on 3D Vision, Robot Learning and Robot Grasp Planning
  - Implemented a general 3D vision system and improved it accordingly
  - Learned Blender and ROS for simulation
  - Datasets: YCB, Suncg, Shapenet
- **Digital Video Multimedia Lab** Columbia University
  Advisor: Prof. Shih-Fu Chang *2016/09 - 2018/02*
  - Conducted research intensively on metric learning problem
  - Conducted research on Computer Vision problems such as traffic event detection and recognition
  - Learned how initialization, batch normalization and learning algorithm affect performance in metric learning
  - Dataset: Stanford Online Product Dataset, CUB-200-2011, CARS196
- **Department of Medicine** University of Toronto
  Advisor: Prof. Chi-Ming Chow *2016/11 - 2018/04*
  - Conducted research intensively on deep learning in continuous hemodynamic monitoring

- Developed algorithm for detecting and alerting the risk of heart disease such as stroke
- Learned time series models
- Dataset: Medical Information Mart for Intensive Care (MIMIC)

- **R&D Department** ThunderBot Inc.
  Advisor: Dr. Qinghua Shen *2016/12 - 2017/05*
  - Conducted research on NLP problem for online chatbot
  - Developed algorithm for plug-in app on Facebook
  - Learned language model with RNN and LSTM

Work Experience

- **Microsoft. Corp.** Beijing, China
  Research Assistant (Excellence Evaluation) *2014/09 - 2014/12*
  - Conducted research on face detection and recognition along with tracking techniques
- **E-Twenty Inc.** Toronto, Canada
  Research Assistant (Excellence Evaluation) *2014/01 - 20104*
  - Conducted research on step counter using Support Vector Machine and Digital Signal Processing
- **Tangam System Inc.** Waterloo, Canada
  Programmer *2013/05 - 2013/08*
- **InfoMax Corp.** Toronto, Canada
  Programmer *2012/09 - 2012/12*
- **University of Waterloo** Waterloo, Canada
  Research Assistant (Excellence Evaluation) *2012/01 - 2012/04*
  - Conducted research on wireless communication protocol such as Bluetooth

Awards and Honors

- MS EE Honors Students (top 5%) 2017
- Top 10 in IEEE Signal Processing Cup 2016
  (https://uwaterloo.ca/electrical-computer-engineering/news/archive/2016-05)
- Stars of Tomorrow Internship Program by Microsoft 2015

Teaching

- Teaching Assistant of Bayesian Model Machine Learning instructed by Prof. John. Paisley

Skills

Languages: C/C++, LaTeX, Python, C#, Objective-C, MATLAB, Javascript, HTML5, Visual Basic and Assembly

Operating Systems: Linux (Ubuntu), ROS, UNIX, MacOS X, Windows 2007/2010

Machine Learning Libraries: Tensorflow (proficient), Scikit-learn, Keras, PyTorch, OpenCV Library

IDE: PyCharm, VIM, Visual Studio, Eclipse, Xcode 5.0