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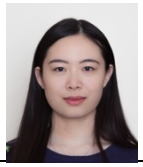
XIAODAN(CHARLOTTE) HU



(519) 729-6826
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EDUCATION

- **University of Waterloo| System Design Engineering (UW)** **Waterloo, Canada**
  Master of Applied Science, Vision and Image Processing Lab, GPA: 90/100 (A+) *May 2017-present*
  Courses: SYDE522 Machine Intelligence, SYDE675 Pattern Recognition, ECE613 Image Processing and Visual Communication, CS685 Machine Learning: Statistical and Computational Foundations, SYDE780 Graphical Deep Learning
- **New York University | Tandon School of Engineering (NYU)** **New York, USA**
  Master of Science, Computer Engineering, GPA: 3.59/4 *Sep.2015-Jan. 2017*
- **Beijing University of Posts and Telecommunications (BUPT)** **Beijing, China**
  Bachelor's degree in engineering, Telecommunication Engineering, GPA: 84/100 *Sep. 2011-July 2015*

RESEARCH EXPERIENCE

- **Interplay Between Language and Vision - the Multimodal Machine Learning** *Nov. 2017 – present* **UW, Canada**
  - Do literature review about establishing a model that can process and relate information from multiple modalities
  - Detect objects in images with a Region Convolutional Neural Network (RCNN). Use Bidirectional Recurrent Neural Network (BRNN) to compute the word representations (take a sequence of N words; transform each one into h-dimensional vector)
  - Clear AttnGAN: Fine-Grained Text to High Resolution Image Generation using Deconvolution Network inside the AttnGAN
- **Motion estimation for High Resolution Enhancement** *May 2017 - present* **UW, Canada**
  - Deep learning: Improve spatial pyramid network (SPyNet) based on the idea of temporal convolutional network (TCN) for motion estimation of high resolution videos; Train TCN on image datasets to generate motion flow for videos
  - Classical: Propose Kalman-filter based optical flow motion estimation methods to gain accurate flow fields for videos; Design directional blurring filters for anti-artifacts; Video scene cut detection
- **Weight Quantization on Accuracy in Pre-Trained Mobilenets of Various Depth** *Jan.– Apr. 2018* **UW, Canada**
  - Evaluate the trade-off between accuracy and model size using pre-trained Mobilenet networks of different hyperparameters for classifying traffic signs. Use quantized pre-trained Mobilenets (the last fully connected layer removed) to extract features and trained our own 32-bit and quantized classifiers. Cross compared the the changes in accuracy relative to the model size
- **ImageNet Object Detection and Classification** *Jan.– Apr. 2018* **UW, Canada**
  - Performance comparison between MRCNN, YOLO, MobileNet for object detection and classification. Train on Google Cloud
- **Digital Pathology Image Classification** *Jan.– Apr. 2018* **UW, Canada**
  - Use VGG16 / LBP + SVM for digital pathology image classification
- **Feature Fusion for Different Face Recognition** *Sep. – Dec. 2017* **UW, Canada**
  - Fuse PCA feature with K-Nearest Neighbor (KNN) and classify using SVM with different kernel to recognize faces
- **Yelp Dataset Analysis Using Regression Model, Sanity Checking and Data Indexing** *Jan. – Apr. 2017* **UW, Canada**

STANDARDIZED TESTS

- IELTS: Average (Listening 7.5, Reading 8.5, Speaking 6.5, Writing 6.5) = 7.5
- GRE: Sum (Verbal 152, Quantitative 169, Analytical Writing 3.0) = 321+3.0

INTERNSHIP

- **Christie Digital Systems Inc. (Cooperation with VIP Lab)** **Kitchener, Canada**
  Content Adaptive High Resolution Enhancement for Videos *March. 2017 - present*
  - Accomplish the content-adaptive high-resolution enhancement using a low resolution projector: video sharpening using Weiner deconvolution; design non-stationary filter to enhance video resolution according to content including text detection (MSER and local thresholding) and motion detection (hypothesis testing);
  - Transfer content-adaptive super-resolution enhancement part to multi-projector setup

SKILLS

- Tools: Pytorch, TensorFlow, Keras, Sklearn, OpenCV, Amazon EC2, Google Cloud, MangoDB
- Languages: PYTHON, MATLAB, JAVA, Mysql, JavaScript, C++

PUBLICATIONS

- **Xiaodan Hu**, Ahmed Gawish, Paul Fieguth, Mark Lamm, "Kalman Filter based Motion Estimation for High Resolution Enhancement", manuscript in prep
- **Xiaodan Hu**, Avery Ma, Ahmed Gawish, Mark Lamm, Paul Fieguth, "Motion Detection in High Resolution Enhancement", Journal of Computational Vision and Imaging Systems (2017). Poster session presented at the CVIS 2017 - 3rd Annual Conference on Vision and Imaging Systems
- Shixiong Hu, He Jin, **Xiaodan Hu**, Yuannan Long, "Application of modular approach in GIS-based hydrological modeling", Geoinformatics, 2014 22nd International Conference