

EDUCATION

- ◆ **University of Waterloo | System Design Engineering (UW)** **Waterloo, Canada**
Master of Applied Science, Vision and Image Processing Lab, GPA: 4/4 (A+) *May 2017-Dec. 2018*
Courses: SYDE780 Graphical Deep Learning, CS685 Machine Learning: Statistical and Computational Foundations, SYDE522 Machine Intelligence, SYDE675 Pattern Recognition, ECE613 Image Proc. and Visual Comm., SYDE672 Statistical Image Proc.
- ◆ **New York University | Tandon School of Engineering (NYU)** **New York, USA**
Master of Science, Computer Engineering, GPA: 3.53/4 *Sep.2015-Jan. 2017*
- ◆ **Beijing University of Posts and Telecommunications (BUPT)** **Beijing, China**
Bachelor's degree in engineering, Telecommunication Engineering, GPA: 85/100 (A) *Sep. 2011-July 2015*

RESEARCH EXPERIENCE

- ◆ **ProstateGAN: Mitigating Data Bias via GANs for Prostate Cancer Classification** *Sep. 2018 – present UW, Canada*
 - Estimate the potential distribution of prostate imaging samples, and use conditional GAN techniques to augment the prostate imaging datasets based on the corresponding labels to increase the accuracy of prostate cancer classification
- ◆ **ClearGAN: Fine-Grained Text to High Resolution Image Generation** *May 2018 – present UW, Canada*
 - Improve perceptual quality of generated image by considering both contextual loss and perceptual loss, and increase the resolution of synthesis by applying deconvolution network and sub-pixel convolution layer
- ◆ **Text Enhancement in Projected Imagery** *May 2018 – Aug. 2018 UW, Canada*
 - Improve the visual quality of projected imagery by enhance text and non-text regions differently
 - Propose a text enhancement scheme based on a novel local dynamic range statistical thresholding
- ◆ **Motion Estimation for High Resolution Enhancement** *May 2017 – May 2018 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*
- ◆ **Digital Pathology Image Classification** *Jan.– Apr. 2018 UW, Canada*
- ◆ **Feature Fusion for Different Face Recognition** *Sep. – Dec. 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; Text detection; Motion detection; Non-stationary filtering

SKILLS

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

PUBLICATIONS

- ◆ **Xiaodan Hu**, Alexander Wong, "ClearGAN: Fine-Grained Text to High Resolution Image Generation", CVPR 2019, manuscript in prep.
- ◆ **Xiaodan Hu**, Audrey Chung, Alexander Wong, and Paul Fieguth, "Mitigating Data Bias via Generative Adversarial Networks (GANs) for Prostate Cancer Classification," manuscript submitted to NIPS ML4H 2018 under review
- ◆ **Xiaodan Hu**, Mohamed A. Naiel, Zohreh Azimifar, Ibrahim Ben Daya, Mark Lamm and Paul Fieguth, "Projector Resolution Enhancement Using a Fast Non-stationary Content-adaptive Scheme", U. S. Patent in process
- ◆ **Xiaodan Hu**, Mohamed A. Naiel, Zohreh Azimifar, Ibrahim Ben Daya, Mark Lamm and Paul Fieguth, "Projector Resolution Enhancement Using a Non-stationary Content-adaptive Scheme", Journal of the Society for Information Display, manuscript in prep.

- **Xiaodan Hu**, Mohamed A. Naiel, Zohreh Azimifar, Ibrahim Ben Daya, Mark Lamm and Paul Fieguth, “Text Enhancement in Projected Imagery”, manuscript submitted to Conference on Vision and Imaging Systems (CVIS 2018) under review
- **Xiaodan Hu**, Avery Ma, Ahmed Gawish, Mark Lamm, Paul Fieguth, “Motion Detection in High Resolution Enhancement”, published in Journal of Computational Vision and Imaging Systems (2017). Poster session presented at the Conference on Vision and Imaging Systems (CVIS 2017)
- Shixiong Hu, He Jin, **Xiaodan Hu**, Yuannan Long, “Application of modular approach in GIS-based hydrological modeling”, Geoinformatics, 2014 22nd International Conference