

# Ning Xie

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## Personal Statement

I'm a second year PhD student of Computer Science & Engineering at Wright State University, Dayton OH. My research interests are broadly in data science, with a focus on deep learning, computer vision, and web systems modeling. I possess industry experience in neural and kernel learning methods for image processing and sequence prediction. My academic research studies deep neural network mechanisms toward *interpretability*, via convolutional neural network(CNN) visualization and other techniques. I have also applied Recurrent Neural Networks to reveal latent behavioral patterns in classes of automated traffic faced by web systems. **Actively seeking a summer internship.**

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## Technical Skills

- Programming Language: Python, C/C++, Java, R, Matlab
  - Frameworks & Libraries: TensorFlow, Keras, Caffe, OpenCV
  - Operating Systems: Mac OS X, Linux, Windows
  - Software: Microsoft Visual Studio, Eclipse, Matlab, PyCharm
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## Education

### Ph.D. in Computer Science and Engineering

Wright State University, GPA 4.0

**Jan. 2016 - Dec. 2020**

Dayton, OH, USA

*Courses: Algorithm Design and Analysis, Network Science, Advanced Programming Languages, Machine Learning, Smart Cities: Devices & Methods, Distributed Computing, Computer Organization, OS Internals and Design*

### B.S. in Mathematics and Applied Mathematics

Hebei University of Technology, GPA 3.55

**Sep. 2010 - Jun. 2014**

Tianjin, China

- National Second Prize of CUMCM (Contemporary Undergraduate Mathematics Modeling Contest) Oct. 2013
  - Learning Excellence Award in College of Science 2012-2013
  - First-class Scholarship of the Hebei University of Technology Nov. 2011
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## Professional Experience

### Graduate Research Assistant

Kno.e.sis Center, Wright State University

**Jan. 2016 - Present**

Dayton, OH, USA

- Currently working on *Explainable Deep Learning for Computer Vision* via CNN visualization techniques.
- Implemented deep learning systems (LSTM-RNN) to evaluate patterns in request sequence of web robot and IoT device sessions for request prediction and traffic generation. One paper on this project has been accepted by ISNN 2017.
- Awarded two scholarships to attend events for women in computing: Ohio Celebration of Women in Computing at Lake Huron in Ohio, February 2017, and the CRA-W Grad Cohort Workshop in Washington, DC, April 2017
- Poster presented at 2016 Women in STEMM Leadership Institute Symposium, Dayton, OH, October 2016.
- Awarded an NSF Student Fellowship to attend 12th Reasoning Web Summer School, Aberdeen, Scotland, September 2016.
- Prepared and delivered a Deep Neural Network presentation for a Wright State Seminar, June 2016.

### Algorithm Engineer

Tianjin Tiandy Digital Technology Co., Ltd

**Jun. 2014 - Dec. 2015**

Tianjin, China

- Used Deformable Parts Model (DPM) to detect people making phone calls in image data. Reduced false recognition rates by developing location and skin-color filters.
  - Improved Visual Background Extractor (VIBE) to extract the Regions of Interest (ROI) effectively in complex environment of rivers and streams (light changing, wave interfering, etc.) to identify debris in water. Implemented an Artificial Neural Network for garbage classification.
  - Researched Pixel-Based Adaptive segmentation (PBAS) for image foreground segmentation, implementing this method for an intelligent transportation system project.
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## Publications

**Xie, N.**, Brown, K., Rude, N., & Doran, D. (2017, June). A Soft Computing Prefetcher to Mitigate Cache Degradation by Web Robots. In International Symposium on Neural Networks (pp. 536-546). Springer, Cham.

Sarker, M. K., **Xie, N.**, Doran, D., Raymer, M., & Hitzlers, P. Explaining Trained Neural Networks with Semantic Web Technologies: First Steps. Twelfth International Workshop on Neural-Symbolic Learning and Reasoning, NeSy (Vol. 17). (accepted)

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## Research Interests

Deep Learning, Image Processing and Computer Vision, Web Systems Modeling, Sequence Data Analytics, Data Science