

XUAN CHEN

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EDUCATION

Carnegie Mellon University

Aug. 2019 – Dec. 2020(expected)

Master of Science in Electrical and Computer Engineering

GPA: 3.8/4.00

- **Selected Courses:** Machine Learning, Deep Learning (PhD-Level), Security of DL, Statistics

University of Science and Technology Beijing

Sep. 2015 – Jun. 2019

Bachelor of Engineering in Automation

GPA: 3.86/4.00 (Top 5%)

- **Selected Courses:** Control Theory, Pattern Recognition, Database Technology and Applications
- **Awards:** Outstanding Graduate Student (Top 5%), USTB First-Class Scholarship (Top 3%)

PUBLICATION

Chen X., Wang, Z., Fan, Y., Jin, B., Mardziel, P., Joe-Wong, C., & Datta, A. (2020). Towards Behavior- Level Explanation for Deep Reinforcement Learning. *AAAI 2021* (under review). arXiv:2009.08507

EXPERIENCE

Carnegie Mellon University - Electrical and Computer Engineering Dept.

Aug. 2020 – Present

Teaching Assistant, 18-661 Introduction to Machine Learning for Engineers

<https://18661.github.io/>

Uncertainty Calibration for Machine Learning Output, Virginia Tech

Jun. 2020 – Present

Research Assistant

Supervised by Prof. Ruoxi Jia

- Proposed a differentiable kernel-density-estimation-based loss to improve the uncertain estimation of neural network and minimize the explicit expression of calibration error during training
- Working on a pipeline combined with adversarial training to improve the model's generalization

Explanations for Deep Reinforcement Learning, CMU

Oct. 2019 – Sep. 2020

Research Assistant

Supervised by Prof. Carlee Joe-Wong and Prof. Piotr Mardziel

- Proposed a class of behavior-level attributions to explain agents' behavior beyond input importance and facilitated the transparency of the decision-making process for DQN-trained agents in Atari games
- Derived a novel metric for quantitatively evaluating the performance of behavior-level attributions methods
- Explored the applicability of five vision attribution methods on an image-input RL model using TensorFlow and provided attribution map for internal states of DQN-trained agents

COURSE PROJECTS

Neural Speech Recognition

- Implemented a speech utterance encoder consisting of a CNN-based feature extractor, a weight-dropped stack bi-LSTM-feature sequence encoder, and a DNN-based phoneme classifier, trained using CTC loss
- Implemented a character-level transcript-text beam-search decoder with self-attention
- Achieved a mean Levenshtein distance of 9.05 on the phoneme sequence prediction task, and a mean Levenshtein distance of 10.82 on the speech-to-text task

Faster Transfer Learning for GAN-Style Transfer

- Proposed meta-transfer learning with generator decomposition strategy to effectively perform transfer learning for GAN-style transfer and achieved state-of-the-art performance
- Largely reduced the trainable parameters by ten times and decreased training time while achieving similar results as the naive fine-tuning baseline model

Fourier-Coefficients-Based Face ID Recognition

- Designed and built a machine-learning signal-processing pipeline system using discrete-Fourier transform and multi-KNN classifiers to achieve over 95% accuracy
- Designed and drafted a system roadmap and features and adjusted the machine learning model to tolerate real-time noise while maintaining high accuracy

PROFESSIONAL SKILLS

Computer Languages: Python, Java, Bash, C/C++, MATLAB

Software & Tools: TensorFlow, PyTorch, Linus, AWS, Git, LaTeX