

EDUCATION

University of California, Davis, Davis, CA, US

9/2019 – Present

Ph.D. candidate in Electric and Computer Engineering | GPA: 3.73/4.0

- Research topic: Reinforcement Learning; Optimization and Control
- Honor: The Dean's Distinguished Graduate Fellowship

Zhejiang University, Hangzhou, Zhejiang, China

9/2015 – 6/2019

B.Eng. in Information Engineering | GPA: 3.75/4.0

- Honor: Academic Excellence Scholarship; Provincial Outstanding Student Scholarship; Excellent Graduation Thesis
- Coursework: Reinforcement Learning, Programming, Algorithm Design, Mathematic Statistics, Numerical Optimization, Image Processing, Control Systems, Information Theory, Data Analysis

SELECTED RESEARCH & PROJECTS

Reinforcement Learning Development

9/2020 – Present

- Built the River Raid (Atari 2600) through the Arcade-Learning-Environment based on **Open AI** platform; Used **Python**, **TensorFlow**, **Keras** and **open CV** for applying **Deep Q-learning Network (DQN)**, **Double DQN (DDQN)** and **Deep Recurrent Q-Learning Network (DRQN)** to train the agent. Decreased training time by 12% and increased the training score by 20%.
- Applied a new risk measure (EVaR) to **risk-sensitive reinforcement learning** based on Markov decision process and proposed the **EVaR value iteration algorithm**, **EVaR Q-learning algorithm** and **EVaR policy gradient method**. Validated these algorithms in simulation experiments using **Python** and proved the algorithms were more practical and computationally tractable. Papers are submitted to journal and accepted by conferences.

Classification of HPV in-body images based on Machine Learning

11/2018 – 5/2019

- Established an auxiliary recognition system to help clinical doctors to classify these images into lesions of varying degrees. Utilized **image processing** and **data augmentation** algorithms in preprocess and used **conventional neural networks (CNNs)** for training.
- Increased the accuracy by 18% and this paper is rewarded as Excellent Graduation Thesis of Zhejiang University.

Driver Assistance System with Traffic Signs Recognition based on Machine Learning

3/2018-- 6/2018

- Constructed a driver assistance system with the ability to recognize the traffic signs and control the car if necessary; Used **Python**, **TensorFlow** and **open CV** to apply **image processing** algorithms for preprocess and applied a pretrained **convolutional neural network (CNN)** to classify the images.
- This system can recognize traffic signs with accuracy of 99.68% and give the corresponding action in a few seconds. This project is awarded a patent in China.

PUBLICATIONS & SKILLS

Publications

- "Risk-sensitive Learning with Entropic-VaR Optimization", in *Proc. Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, Oct 2022.
- "Policy Gradient based Entropic-VaR Optimization in Risk-Sensitive Reinforcement Learning", in *Proc. Allerton Conference on Communication, Control and Computing*, Monticello, IL, Sep 2022.
- "EVaR optimization for risk-sensitive reinforcement learning," *IEEE Transactions on Information Theory*, Jan. 2022.

Skills

- Programming Language: Python; MATLAB; C; C++; Java
- Tools: Verilog; Assembly; HFSS; Altium Designer; Keil; Multisim; ADS