Shangquan Sun

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EDUCATION

University of Michigan Sept. 2019 - Jul. 2021 (expected)
M.S. in Data Science
- Major GPA: 4.0/4.0

Coursework: Machine Learning, Database Management Systems, Information Retrieval, Computational Modeling in HCI, Systems for AI, Introduction to Probability

University of Michigan - Shanghai Jiao Tong University Joint Institute Sept. 2015 - Aug. 2019
B.S. in Electrical and Computer Engineering
- Major GPA: 3.6/4.0

Coursework: Data Structure, Algorithms, Operating Systems, Machine Learning, Data Mining, Artificial Intelligence

AREAS OF INTEREST

Computer Science, Data Science, Statistics, Data Mining

SELECTED PROJECTS

Data Mining and Statistical Learning for Intelligent Tutoring Systems Mar. 2018 - May. 2018
- Extracted log data in SQL and performed data cleaning, conversion and extraction in Python
- Evaluated the performance of current Intelligent Tutoring Systems (ITS) with a fixed schedule of reviewing an item, and proposed the combination of Machine Learning (ML) models and the organization of ITS
- Modeled and compared multiple ML algorithms including Support Vector Machine, Random Forest, etc.
- Adapted Cross Validation method to the chronological data to avoid predicting past events by future events
- Improved the performance of ITS by scheduling intervals between Spaced Repetition based on models generated by the ML algorithms in scikit-learn library

Gene Chip Data Analysis by Machine Learning Mar. 2018 - May. 2018
- Diagnosed and processed the gene chip data by assessing missing data in SQL and applying Principle Component Analysis in MATLAB
- Trained models based on ML methods including Linear Discriminant Analysis, Back-propagation Neural Network, etc.
- Developed a model which could predict the probability of developing cancer given gene chip information with 95% accuracy

Deep Reinforcement Learning for Autonomous Driving in Simulation Sept. 2018 - Dec.2018
- Experimented the training of autonomous driving agent on Torcs platform by Imitation Learning and Proximal Policy Optimization (PPO) with different hyper-parameters
- Trained an agent of autonomous driving on Duckietown platform, by Imitation Learning
- Attained a trained agent which could run autonomously on Torcs platform

Reinforcement Learning in Atari Game, Pacman May. 2018 - Aug. 2018
- Studied the implementation of Deep-Q Network (DQN) and PPO algorithms by OpenAI Gym
- Modified the reward function to adapt the DQN and PPO algorithms to Atari game Pacman and run simulations with various hyper-parameters
- Compared the performances of Dueling Double DQN and PPO and attained the result that PPO performed much better than Dueling Double DQN

SELECTED ACTIVITIES

Teaching Assistant, *Probabilistic Methods in Engineering* May. 2018 - Aug. 2018
- Resolved students' mathematical issues related to probability theory and statistics
- Compiled and delivered recitation classes weekly, and graded assignments and examination papers for 160 students

Chairman Jul. 2018 - Jul. 2019
Honor Council at University of Michigan - Shanghai Jiao Tong University Joint Institute
- Reduced academic misconduct and improved academic integrity by organizing routine investigation and hearing and investigating alleged violation of the Honor Code (HC) at the institute including plagiarisms, academic cheating, etc.

MISCELLANEOUS

Honors Undergraduate Excellent Scholarship (2018)
First Prize of China Odyssey of the Mind in China Division (2016)
Tools SQLite, LaTeX, Origin, Xilinx, Vim, PCspim, PSPICE
Languages Mandarin (Native speaker), English (TOEFL 108), Japanese, German