

Haoran Su

Looking for Machine Learning/Deep Learning/Quantitative Research Internship Opportunities

haoran.su@nyu.edu | +1(510)316-2541 | [www.github.com/AnthonySu](https://github.com/AnthonySu) | www.linkedin.com/in/haorancal/

EDUCATION

Ph.D., Operation Research and Machine Learning	12/2021(expected)
New York University	New York, NY
<u>Selected Courses</u> : Deep Learning, Behavior Informatics, Stochastic Modeling, Operation Research	
Teaching Assistant in Stochastic Modeling and Operation Research	
M.Sc. in Transportation Engineering	05/2018
University of California, Berkeley	Berkeley, CA
<u>Selected Courses</u> : Artificial Intelligence, Machine Learning, Statistical Modeling, Dynamic Programming	
B.Sc., Double Major in Computer Science and Engineering	08/2017
University of California, Berkeley	Berkeley, CA
<u>Selected Courses</u> : Data Structure, Algorithms, Computer Architecture, Software Engineering, Database	

TECHNICAL SKILLS

Programming Languages	Python, PyTorch, TensorFlow, Java, C/C++, Ruby-on-rail, Matlab, R
Libraries & Toolbox	Pandas, NumPy, SciKit-learn, TensorBoard, Matplotlib, Seaborn, Gym
Platforms & Tools	Git, Docker, Bash, Apache Hadoop(Pig/Spark), AWS EC2, S3

RESEARCH PROJECTS

TNC Transit Booking Analysis on Denver Daily Travel Activities

- Data mining and cleaning based on the data schema with user features/trip information/user-trip features. Defined positive and negative labels for the Uber-transit booking feature analysis.
- Performed PCA and explanatory/confirmatory factor analysis for further selection of features.
- Formulated classification problems to validate the modes of travel using sklearn and self-developed KNN/SVM/Decision Tree/Random Forest/Naive Bayes/LDA/Logistic Regression algorithms.
- Established a LSTM-based deep neural network model to predict peak hour multimodal booking demand in the area. Proposed market segmentation measures for revenue management.

Deep Reinforcement Learning on Connected Vehicle Applications for Emergency Service

- Customized OpenAI Gym to model urban roadway from microscopic motion planning perspective to macroscopic traffic flow management perspective. Developed a Python interface to bridge RL frameworks with transportation simulator (SUMO/Aimsun).
- Implemented and modified value-based learning algorithms: dueling/double/rainbow DQN with experience replay and fixed target networks on connected emergency vehicle dispatch problems.
- Established an multi-agent RL framework for partially connected traffic settings and implemented maddpg/coma to address vehicle coordination. Saved 30% time for safe emergency vehicle passage than the baseline scenario.

Survey of Supervised Learning CNN models on Image Classification

- Reproduced different versions of ResNet, DenseNet, DarkNet(Yolo) and Inception CNNs as well as their combinations to test t1 and t5 accuracy on ImageNet/MNIST dataset.
- Developed and verified a new regularization method to improve accuracy by more than 2.5%. Conducted sensitivity analysis with respect to input size, computing time and GPU usage.

AWARDS/CERTIFICATIONS

NYU School of Engineering Fellowship	Certificate: Deep Reinforcement Learning:Actor-Critic Methods
C2SMART Student Scholarship	Certificate: Deep Q Learning in PyTorch
Dwight David Eisenhower Transportation Fellowship	Engineer-In-Training, California