

Xiaoyu Sun

Email: xiaoyu.sun@rutgers.edu

Education

Rutgers, The State University of New Jersey

Computer Science, B.S.

Cumulative GPA: 3.82/4.00

Major GPA: 3.95/4.00

New Brunswick, NJ

Sept 2018 - Present

Teaching Experience

Rutgers Office for Diversity and Academic Success in the Sciences

Recitation Instructor

New Brunswick, NJ

Sept 2020 - Present

- Fall 2020 - General Physics II
 - Topics included: Electricity, Electric Circuits, Electromagnetism, Optics, Special Relativity, and Radioactivity.
 - Recorded recitation videos each week explaining homework questions.
 - Held three hours of review session each week for 30+ students.
 - Held weekly office hours.

Research Experience

Rutgers Department of Civil & Environmental Engineering

Research Assistant to Prof. Xiang Liu

New Brunswick, NJ

Sept 2020 - Present

- Conducted research on a project related to port state control (PSC) inspection. The goal is to improve ship inspection efficiency by adapting machine learning tools to analyze a ship's risk level in advance.

Professional Experience

Rutgers Undergraduate Research Journal

Co-founder, Editor

New Brunswick, NJ

Sept 2019 - Sept 2020

- Founded the university-wide undergraduate research journal.
- Provided training sessions for new members to familiar with the review process.
- Reviewed papers in different fields as a reviewer, and given suggestions on logic flow and construction.
- Assisted professors in reviewing and giving reports to authors with feedback on the research content.

Research Projects

Fast Trajectory Replanning

Rutgers University

Summer 2020

- Implemented path planning with Python. Using several modified A* algorithms to find the shortest path for an agent to move toward a goal in an unknown environment with randomly generalized obstacles.

Face and Digit Classification

Summer 2020

Rutgers University

- Designed two classifiers, a Naive Bayes classifier, and a Perceptron classifier. Applied both classifiers to do each of the two tasks: digit recognition and face detection. Obtained over 60% accuracy for digit recognition and 70% for facial detection.

Linear Image Classifier

Spring 2020

Rutgers University

- Built a linear image classifier from scratch in PyTorch using CIFAR10 dataset. Implemented both the forward pass and backward pass of the linear classifier without using PyTorch's autograd capabilities.

Neural Machine Translation

Spring 2020

Rutgers University

- Implemented neural machine translation (NMT) models using recurrent neural networks (RNN), long short-term memory (LSTM) with attention, and transformers.

Reinforcement Learning

Spring 2020

Rutgers University

- Implemented Deep Q-Networks (DQN) to train an agent to play atari pong game from OpenAI Gym environment.

Transfer Learning for Covid-19 Detection from Chest X-Ray

Spring 2020

Rutgers University

- Adapted transfer learning to analyze the Chest X-ray from suspected cases. With a tuned vgg-16 model, we had an accuracy of 90% on average for Covid-19 detection on the test cases.

Honors

Dean's List, Rutgers University, New Brunswick, NJ

2018 - 2020

Skills

Programming Language: Python, Java, C, mySQL

Framework: PyTorch

Markup: LaTeX, Markdown

Language: English, Chinese