Xiaoyu Sun

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Education

Rutgers, The State University of New Jersey New Brunswick, NJ
Computer Science, B.S. Sept 2018 - Present
Cumulative GPA: 3.82/4.00
Major GPA: 3.95/4.00

Teaching Experience

Rutgers Office for Diversity and Academic Success in the Sciences New Brunswick, NJ
Recitation Instructor 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.

- Spring 2021 - General Physics I

    - Topics included: Newton's Law, Work and Energy, Fluids, Heat, Thermodynamics, etc.
    - Held recitation each week explaining homework questions.

Research Experience

Rutgers Department of Civil & Environmental Engineering New Brunswick, NJ
Research Assistant to Prof. Xiang Liu Sept 2020 - Present

- Conducted research on a computer vision project related to railway safety. The goal is to improve railway safety by adapting machine learning tools to do passenger recognition.

Professional Experience

Rutgers Undergraduate Research Journal New Brunswick, NJ
Co-founder, Editor 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   Summer 2020
Rutgers University

- 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

- Phi Beta Kappa National Honor Society

Skills

Programming Language: Python, Java, C, mySQL, Javascript

Framework: PyTorch

Markup: LaTex, Markdown

Language: English, Chinese