

# Xiaoyu Sun

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## Education

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**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

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**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.
- 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

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**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

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**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

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### 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

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

2018 - 2020

## Skills

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

**Framework:** PyTorch

**Markup:** LaTeX, Markdown

**Language:** English, Chinese