

Ilana Zane

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Education

Stevens Institute of Technology, Hoboken

December 2022

MS Applied Artificial Intelligence

Cumulative GPA: 4.0

- Provost's Master Scholarship Award

Rutgers University, New Brunswick

May 2021

BS Computer Science, French

- School of Arts and Science Honors Program
- WiCS(Women in Computer Science) and HackHERS Organizer/Mentor

Skills

Programming Languages

Libraries

Web Programming

Data Interchange

Hardware

CAD

Other

Languages

Python, Java, R, C, C++, MATLAB, React, SQL
NumPy, TensorFlow, Matplotlib, scikit-learn, Pytorch,
seaborn, PySpark, Simulink
HTML, CSS, JavaScript
JSON, STL
Raspberry Pi, ReactorX 150, Jetson-Nano, TurtleBot
AutoCAD, Fusion 360
XSEDE, Git, Linux, ROS, RViz, Gazebo
fluent in French and Bulgarian, conversational Spanish

Work & Research Experience

Stevens SMARTLab

Graduate Research Assistant

- Navigation of socially assistive mobile robots that use SLAM
- Developing robot motion planning algorithms with human-like navigation features for improved robot navigation through crowded and unconstrained environments
- Using RViz and Gazebo to train and test Deep Reinforcement Learning (DRL) Algorithms
- PI: Prof. Yi Guo

Hoboken, NJ

Current

Stevens AISeCLab

Graduate Research Assistant

- Worked on a team to create a mobile robotic arm, using Trossen Robotics ReactorX150 Robotic Arm
- Robotic arm can currently identify objects with Raspberry Pi V2 camera, pick them up, and place them in a predetermined area
- Learned to write and build nodes in ROS for interaction between arm, camera, NVIDIA Jetson Nano Computer, and Garmin LIDAR Lite V3 sensor
- Gave arm full mobility, employ NLP techniques, and have robotic arm pick up specific objects when given voice commands
- PI: Dr. Shucheng Yu

Hoboken, NJ

Spring 2022

Stevens HPDA Lab

Graduate Research Assistant

- Created a web crawler in Python to download more than 20,000 publications related to COVID-19 from PubMed
- Used an LDA model to find most popular topics amongst all publications
- Expanding model to include more data on COVID-19 from other sources and other related pandemics
- PI: Dr. Hang Liu

Hoboken, NJ

Spring 2020

E*TRADE

Software Engineering Intern

- Redesigned FSQ security question component that allows users to select a personal security question and verifies their answer
- Became familiar with Angular framework, MVVM framework and data flow through an application

Arlington, VA

Summer 2019/20

- Utilized React to create an OTP component that allows user to verify their identity when registering for an E*TRADE debit card or new account
- Users were prompted to choose their preferred point of contact from a list of stored email addresses and phone numbers to receive their one time password
- Two step identity verification is intended to significantly decrease fraud amongst existing and newly registered accounts
- Worked alongside other interns on a capstone project to propose new methods to the company to reduce fraud through AI and ML

Projects

Skills U.S.A Robotics Competition

- Engineered a fully functioning robot that was able to manipulate objects while moving through an obstacle course
- Documented all stages of production and presented work to judges
- Rendered a model of the robot with Autodesk Inventor

COVID-19 and Subway System

- Analyzed the impact of COVID-19 on the demand for the subway system in NYC
- Considered number of confirmed cases, socioeconomic status, percentage of essential workers in different geographic areas, and guidelines put into place by New York City

Deep Learning for Jazz Solo Generation

- Created an RNN (recurrent neural network) with LSTM layers to generate snippets of jazz solos for various instruments
- Used the Weimar Jazz Database to analyze 450 jazz solos formatted for statistical analysis
- Model was trained and tested on sequences of jazz solos, and then predicted future sequences of notes with 80% accuracy. Generated sequences were formatted to be exported into MIDI format

Maze Runner

- Created an agent in python that can find the most optimal path through a grid of obstacles using known algorithms and heuristics, like A*
- Applied hill-climbing algorithm to find local optimum in mazes that became increasingly more difficult, based on number of expanded nodes, fringe size at any given moment, and path length

Brain Inspired Computing

- Created LIF, Izhikevich, and Hodgkin-Huxley models to reproduce spikes in cortical neurons
- Worked with a team to create a Spiking Neural Network, that when given an image, created a saliency map predicting where a robot will look first

Recoloring B&W Images

- K-means was used to find the 5 most dominant colors in left half of photo and right half of image was recolored using those 5 colors
- CNN made with TensorFlow is able to adequately recolor B&W images that contain faces and was trained on CelebA-HQ dataset

Relevant Courses

Programming

- Deep Learning, Pattern Recognition & Classification, Data Acquisition/Modeling, Applied ML, Intro to Robotics, Wearable Robotics and Sensors, Computer Integrated Design and Manufacturing

Math & Theory

- Game Theory, Formal Languages & Automata Theory, Design & Analysis of Computer Algorithms, Linear Algebra, Calculus I,II,III