

Jonathan Wang

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EDUCATION

Rutgers School of Engineering Honors Academy - New Brunswick, NJ

May 2022

- B.S. in Computer Science, Cumulative GPA: 3.93
- **Relevant Courses:** Data Structures, Introduction to Computers for Engineering, Computer Architecture, Discrete Structures I/II, Principles of Programming Languages, Systems Programming, Linear Algebra, Multivariable Calculus

WORK EXPERIENCE

Rutgers Center of Alcohol and Substance Use Studies, Research Assistant

Winter 2019 - Current

R Studio, TensorFlow, Keras, XGBoost, AWS, MATLAB, Python

- **Developed machine learning interpretation method** utilizing variable importance plots, local interpretable model-agnostic explanations, and partial dependence plots to give neuroscientists insight into the contributing factors of substance abuse on brain development while making accurate and reliable predictions
- Designed multiple machine learning models in R that utilized tools such as **XGBoost, random decision forests, and convolutional neural networks with automated hyperparameter optimization** which allow neuroscientists to make predictions in a robust manner based on structural and functional brain data in MRI scans
- Performed statistical and predictive data analysis linking neural structural connectivity features with substance use disorders
- Utilized high performance supercluster computing to run programs and generate data on datasets of hundreds of thousands of subjects

Rutgers Wireless Information Network Laboratory Internship, Research Intern

Summer 2018

Java, C++, Excel

- **Engineered a data collection method** that integrated machine learning algorithms and a real-time database to gather, parse, and interpret data sent and received by wireless signal transmitters, which granted fellow researchers easier access to data needed for analysis
- Researched the application of wireless signals in mapping out indoor environments to improve on pre-existing indoor positioning systems

PROJECTS

LoopStory - Ludum Dare 47, Personal Game Development Project

Fall 2020

Unity, C#, Git/GitHub

- Game design challenge to develop a video game in 72 hours around the theme "Endless Loop". Worked in a sub-team of four.
- **Lead designer and scripter.** Worked to organize and implement necessary systems to maximize player experience. Received strong positive feedback for art, innovative design, and complexity.
- Developed AI scripts for enemies with A* pathfinder, worked on the central game logic, and designed the game environment.

HydroTracker - Self Tracking Water Bottle, Honors Intro to Engineering Final Project

Fall 2019

HTML, CSS, JavaScript, Java, Arduino, Google Firebase, 3D Printing

- **Lead designer, head programmer, and creative developer** of a sub-team of eight to develop a product focused on the field of human-centered design for the purpose of improving day-to-day life.
- Built a dynamic real-time web application that tracked water levels via an Arduino UNO linked to a distance sensor and uploaded data to a real-time Google Firebase database.
- Final product pitch received positive feedback on product design, overall complexity, and development organization.

Sorting Algorithm Visualization, Personal Web Application Project

Fall 2019

HTML, CSS, JavaScript

- Constructed a JavaScript application to animate popular sorting algorithms utilizing JavaScript Promises and asynchronous functions to allow others to better understand and visualize the mechanisms of these algorithms

Forest Legend, Personal Game Development Project

2018

GameMaker Studio 2

- Built a top-down action role playing game inspired by The Legend of Zelda games.
- Explored different aspects of game development, scripting, game object logic, and artistic design.

AWARDS

American Computer Science League

Sept. 2017 - June 2019

- Competed at national competitions centered around CS topics, concepts, and rationality. Team placed at the national level.

SKILLS

Programming Languages: Java, Python, HTML, CSS, JavaScript, C++, C, C#, MATLAB, R, Haskell

Libraries, Frameworks, and APIs: Bootstrap, Vue, Angular, TensorFlow, Keras

Tools and Software: GitHub, Unity, Adobe CC, AutoCAD, AWS, Bash, Vim, Excel