

# 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.
- **Lead designer and scripter** of a team of 5. 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 team of 8 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