

# JACOB HOFFMAN

347-209-2325

jackstudent149@gmail.com

Portfolio Website - <https://jacobhoffman.tk>

## FORMER EDUCATION / COURSEWORK

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- Student at Carnegie Mellon University. (18-461/661) Intro to Machine Learning For ECE (Graduate)
- Teaching Assistant at Carnegie Mellon University. (15-410) Operating System Design And Implementation
- B.S. In ECE | May 2020 (15-351) Algorithms and Advanced Data Structures
- M.S. In ECE | May 2022 (18-491) Digital Signal Processing
- Dean's List Spring 2018 (18-370) Fundamentals Of Control

## WORK

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- **CMU Dept. Of ECE | Teaching Assistant For (Graduate) Introduction To Machine Learning | Spring 2020**  
Taught graduate students fundamental machine learning techniques such as Linear Regression, Naïve Bayes, Logistic Regression, Multiclass Classification, SVMs, Nearest Neighbors, Decision Trees, Ensemble Methods, Neural Networks, Clustering, PCA, Online Learning, and Reinforcement Learning.
- **CMU Dept. Of ECE | Theoretical Machine Learning Researcher | Spring 2020**  
Implemented various machine learning methods to classify children's stages of sleep and detect health anomalies given recorded brain waves and vitals from exclusive hospital shared datasets.
- **General Motors | Embedded Controls Intern | Stability Of Vehicle | Summer of 2019**  
Applied control theory concepts to design a brake system for a trailer. The system included ABS and ESC safety features. The system detected instability of a trailer in real time and dampened trailer sway by engaging the brakes.
- **CMU Dept. Of ECE | Signal Processing Researcher | Ultrasonic Positioning Systems | Summer of 2018**  
Worked on close range ultrasonic positioning systems for blind person navigation. Chirps, STFTs, and FFTs were some of the DSP concepts used to implement the system.
- **CMU ISR | Software/Data Researcher | Repository Bug Data Analysis | Summer of 2017**  
Data mined and analyzed millions of code-build records from Travis CI to empirically analyze different coding practices.

## SKILLS

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- Docker | Kubernetes | Python | Flask | MATLAB | R | C | C# | Java | JS | HTML | CSS | PHP | React | Ionic | Electron  
Netlogo | Scheme | Heroku | Google Cloud | AWS | SQL | Mongo | Pytorch | Tensorflow | Latex | Jinja2

## PROJECTS

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- **Uncommon Core** is a differentiated learning platform providing a pencil on paper/tablet math curriculum for students, all materials graded via. machine learning. Students progression is guided via. reinforcement learning.
- **Greenstar Financial** is a software package that runs statistical models (Markowitz, Monte Carlo, and more) on streams of financial asset data and generates reports for wealth managers.

## TRACK AND FIELD ACHIEVEMENTS

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- Ran the 46<sup>th</sup> fastest indoor 300m time of 2016 in the U.S.A (35.16 Fully Automatic Time, Stuyvesant Grey Ducks)

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