

# Wyatt Walsh

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## Education

BS | Industrial Engineering and Operations Research

UC Berkeley | December 2021

High School Diploma

The Hotchkiss School | May 2014

## Experience

### Senior Software Engineer

Stealth NFT DeFi DAO | March 2022 - July 2022

- ♦ Managed front-end UI operations: planning, implementation, validation and testing, deployment, and documentation.
- ♦ Provided guidance and support to junior developers within an agile development methodology to maximize team output.
- ♦ Technologies included: React, NextJS, Redux, Cypress, Jest, StorybookJS, ethers.js, Typescript, SCSS, Jira, Notion.

### Founder, CTO

SandLabs | June 2021 - March 2022

- ♦ Created a NextJS web app including landing page, blog, and other content to best provide an online home for the project.
- ♦ Secured Web3 grant funding from the Ocean Protocol to conduct a Reddit Web3 Content data scrape and analyses.
- ♦ Partnered with two Duke University cofounders to further explore entrepreneurial opportunities in the Web3 space.
- ♦ Tools and skills included: Python, web data scraping, API usage, Solidity, React, Typescript.

### Data Science

Gap Inc. | January 2020 - May 2020

- ♦ Extracted 5+ years of time series forecast data using MySQL and quickly processed using Apache Spark (PySpark).
- ♦ Applied data scientific and analytic methods to create a forecast correction system improving demand forecasts by 5%-25%.

### Course Staff for Data 8: Foundations of Data Science

UC Berkeley | January 2019 - December 2019

- ♦ Fostered student development as a course staff tutor for the largest in-person data science course of 1600+ students.
- ♦ Invigorated student interests with 75+ lectures on varying topics in statistics, programming, and analytics.
- ♦ Hosted office hours, proctored exams, graded assignments, crafted lesson plans, and collaborated with other staff.

## Personal Projects

### High Frequency Algorithmic Cryptocurrency Trader

- ♦ Implement and deploy custom crypto trading portfolio optimization algorithms using open-source frameworks.
- ♦ Deep learning methodologies utilized for forecasting and quasi-quantum algorithms used for portfolio optimization.
- ♦ Technologies include: Docker, AWS, Python, Jupyter Notebooks, FreqTrade, SciPy, Tensorflow, Pytorch, Pandas.

### Comprehensive NBA SQL Database from Scratch

[kaggle.com/wyattowalsh/basketball](https://www.kaggle.com/wyattowalsh/basketball)

- ♦ Implemented daily updating SQLite database of NBA data since 1946, including 64,000+ games, 4800+ players, and 30 teams
- ♦ Data pipeline created by using containerized Python scripts and validated by using Pandera data scheme validation.

### NBA Game Attendance Forecaster

[github.com/wyattowalsh/NBA-attendance-prediction](https://github.com/wyattowalsh/NBA-attendance-prediction)

- ♦ Optimized NBA stadium stakeholder's decision making by building a Python-based game attendance prediction tool.
- ♦ Enabled end-to-end machine learning modeling lifecycle ranging from data collection to model performance analysis.
- ♦ Refined modeling with 10+ regression experiments resulting in a best error of 5% average stadium capacity.

### Regularized Linear Regression Deep Dive

[github.com/wyattowalsh/regularized-regression-from-scratch](https://github.com/wyattowalsh/regularized-regression-from-scratch)


- ♦ Implemented Lasso, Ridge Regression, and the Elastic Net in Python after reading associated research paper.
- ♦ Published 3 articles in Towards Data Science after investigating and solving underlying model optimization mathematics.
- ♦ Open-sourced all project implementations, including Pathwise Coordinate Descent optimization and cross-validation.

## Technical Skills


### Programming Languages


Python, SQL, R, Java, Matlab, HTML, CSS, Javascript, Typescript

**Collection**   
♦ Web scraping  
♦ APIs (REST)  
♦ Databases  
♦ Airflow

**Visualization**   
♦ Reporting  
♦ Dashboards  
♦ Data Plotting  
♦ Matplotlib  
♦ D3.js

**Processing**   
♦ Pandas  
♦ Apache Spark  
♦ Multiprocessing  
♦ Kubernetes

**Modeling**   
♦ ML  
♦ NLP  
♦ CV  
♦ Forecasting  
♦ Simulation

**Deployment**   
♦ MLOps  
♦ Data Orchestration  
♦ Flask/FastAPI  
♦ Cloud Platforms

**Data** 

### Cloud Technologies

Platforms (AWS, GCP, Azure), CI/CD (GH Actions, Travis CI), GitHub, GitLab, DagsHub

### Workflow

Git, Linux, Shell Scripting, Virtual Environments, Virtual Machines, Jupyter Notebooks, Docker, Kubernetes, Testing

### Optimization Tools

AMPL, IBM CPLEX, Gurobi, PuLP, Metaheuristics, Reinforcement Learning

### Miscellaneous

3D CAD Modeling (Autodesk & Solidworks), Microsoft Office Suite, Advanced Typesetting, Web Development

## Certificates

♦ IBM Data Science Professional Certificate

IBM | 02-2021

## Publications

### Towards Data Science

- [Basics of Linear Regression Modeling and Ordinary Least Squares \(OLS\)](#)
- [Using Ridge Regression to Overcome Drawbacks of Ordinary Least Squares \(OLS\)](#)
- [Implementing Pathwise Coordinate Descent For The Lasso and The Elastic Net In Python Using NumPy](#)