Royce Moon

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EDUCATION

University of Michigan, Ann-Arbor
Fall 2022 – Spring 2024 (Expected)
B.S. in Computer Science, Merit Scholar

EXPERIENCE

AbbVie
Machine Learning Intern | May 2022 - Present
- New Biological Entities (NBE) Analytical R&D Group
- Exploring machine learning applications to streamline peptide mapping data analysis workflows

Bedrock Digital Assets
Software Engineering Intern | Feb. 2022 – Apr. 2022
- Engineering a trading signal generation server using live market data using Python and WebSocket
- Developing in-house REST API using Tornado Framework integrated with cloud architecture (AWS) and MySQL

Quant
Vice President, Head of Cryptocurrencies | Sept. 2021 - Present
- Leading research team of six in arbitrage and long-only strategies in cryptocurrencies and DeFi
- Organizing fund events, internal fund structure, and quantitative research team recruiting

CERN (European Organization for Nuclear Research)
Research Assistant | Oct. 2020 – Jun. 2021
- Built from scratch and benchmarked frequency/time domain convolutional neural networks for multi-parameter estimation of binary black hole mergers from gravitational wave signals
- Results used in ongoing research at CERN following "*Deep Learning Merger Masses Estimation from Gravitational Waves*" and "*Deep Learning Gravitational Wave Detection in the Frequency Domain*" papers

smartnUp EdTech
Machine Learning Intern | Jun. 2020 – Dec. 2020
- Developed facial recognition attendance system for deployment in schools in Jaipur, India for approximately 2,000 students
- Developed pipeline for real-time facial recognition on CPU and android devices using Fast-MTCNN and TVM stack
- Developed integrated backend PostgreSQL database for pipeline

MIT LaunchX
Selected Student | Jun. 2019
- Developed iOS app for Alzheimer's caregivers to remind patients of daily tasks using voice reminders and geofencing technology
- Secured 25 beta users and 30 customers

AWARDS

USA Computing Olympiad
2021 Gold Division Contest Qualifier

Nokia Bell Labs NJ Regional Science Fair
2020, 2019 Regeneron ISEF
- *"An Alternative to Conventional Cloaking Methods: Macroscale Digital Cloaking via ghostNet"*
- 3rd place Engineering Division
- 2x Winner Office of Naval Research Naval Science Award
- Geoscience Award

American Pre-College Philosophy Olympiad
2019 U.S. National Finalist

SKILLS

Machine Learning: Deep Learning, Computer Vision, NLP, Financial Machine Learning, Recurrent Neural Networks (RNNs), Long-Short Temporal Memory (LSTMs), Transformers

Cybersecurity: Reverse Engineering, Malware Analysis, Static Code Analysis, Web App Security, OSINT

Foreign Language: Fluent in Korean and Mandarin Chinese

TOOLS // PLATFORMS

Programming Languages: Python, Java, C/C++, Go, JavaScript

Frameworks: NumPy, Pandas, Scikit-Learn, TensorFlow, Keras, Node.js, Vue.js, Three.js, Tornado, Flask

Software: Git, MySQL, PostgreSQL, MongoDB, Kubernetes, Docker, IDA Pro, REST APIs, GraphQL, AWS

PROJECTS

Shepherd – Python, Alpaca API, MongoDB, REST API:
- a Python algorithmic trading bot with a command-line interface and REST API.
- Wrote custom strategy class for integration with the REST API. Utilized custom strategy class to implement a simple example strategy (Payday Anomaly).

FCNN – Python, Keras, TensorFlow, PyCBC:
- implemented a time domain and frequency domain convolutional neural to predict mass, spin, and eccentricity of black holes in binary merger events.
- Models used in internal research at CERN at the intersection of ML and gravitational astrophysics.

m00nNet – Go, NumPy:
- an in-progress simple deep learning library written in Go from scratch for educational purposes.
- Implemented tensors based on NumPy ndarrays including important tensor operations, layers, loss functions, optimizers, and neural nets.