Astarag Mohapatra

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Education

Indiana University at Bloomington **Aug 2022 -Present**
Master in Data Science *GPA:4.0/4.0*
Courses: Machine learning, Applied Algorithms, Portfolio Management, Equity Markets, Time Series Analysis

National Institute of Technology, Rourkela **Jun 2017 – Aug 2021**
B.Tech in Mechanical Engineering (Major) *CGPA: 8.22/10.0*
B.Tech in Electronics and Communication Engineering (Minor) *CGPA: 7.94/10.0*

Technical Skills

Programming: Python, C++, PyTorch, sklearn, Tensorflow, R programming, HTML/CSS, Selenium, JAX, JavaScript, PostgreSQL, Portfolio Optimization Tools

Developer Tools: Kubernetes, Ray, Weights & Biases, Google Cloud Platform, Jupyter, GitHub, Docker, VS Code, MLOPs, Langchain, Llama Index, MongoDB, Redis, AWS

Experience

Columbia University, New York **Aug 2021 – Present**
Remote Research Assistant for FinRL and FinRL-Meta Open Source Project Lab *Part-time*

- Contributed *blog posts*, *paper explanations*, trading demos and bug fixes for the FinRL library. First responder in the GitHub issue section.
- Leading the development on Hyperparameter optimization using *Ray tune*, *Optuna* and *Weights & Biases*, explainability and interpretability of DRL algorithms in the financial world

Salesken, Bengaluru, India **Dec 2021 - Apr 2022**
Machine learning and Reinforcement learning Intern *Internship*

- Integrated end-to-end hyperparameter optimization pipeline using the ***Population based algorithms*** and **Ray library** resulting in an average 7% increase in accuracy for the automated sales agent model.
- Developed *politeness language classification model* using the hugging face library and transformer models resulting in 16% increase in F1-score compared existing organization language models
- Build microservices using Docker, Kubernetes and GCP Platform. Reduced the ready-to-release time from 2 hours to 45 mins through automation in the production pipeline .

University of Liège, Belgium **Jun 2021 – Dec 2021**
Visiting Reinforcement Learning Research Intern *Remote Internship*

- Developed a deep reinforcement learning trading agent in collaboration with Prof. Damien Ernst using Optuna and Stable Baselines3, resulting in 60% increase in Sharpe Ratio compared to the Industrial average benchmark
- Analyzed the integration of Google trends as a proxy for market sentiment analysis and improved the Sharpe ratio by 13% for volatile assets in Crypto-trading compared to the baselines.

Open-Source Contributions and Communities

AI4Finance foundation

- Helped to grow the community by contributing blog posts, bug fixes and features on Reinforcement learning applications in finance. Currently, working on financials applications using Large Language Models.

Llama Hub for Llama Index and Langchain

- Contributed an SEC filings loader to the community for users to building financial applications using languge models

Investment Management using Python and Machine learning, EDHEC Business School

- Contributed a series of articles and projects to provide insights into the course and future directions.

Investment Management Club, Kelley School of Business, Indiana University

- Volunteering at the Investment Management Club at IU to work with on using Machine learning and AI to do investment research.

Certification

- LLM101x: Large Language Models: Application through Production, Databricks
- Building LLM Powered Applications, Weights and Biases
- Deep Learning Specialization DeepLearning.AI, Coursera
- Investment Management with Python and Machine Learning, EDHEC Business School
- Reinforcement learning Specialization University of Alberta, Coursera
- DeepLearning.AI TensorFlow Developer, Coursera
- MLOPs Specialization DeepLearning.AI, Coursera