Divit Rawal

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Education

University of California, Berkeley Aug. 2023 – Present

Physics, Mathematics, Electrical Engineering & Computer Science (Minor) *Berkeley, CA*

- Relevant Coursework: Data Structures, Discrete Mathematics and Probability Theory, Abstract Linear Algebra, Quantum Mechanics, Mathematical Physics, Advanced Programming in R, Deep Learning for Visual Data, Computer Networks
- Launchpad AI/ML, Hands-On PCB Engineering Course Staff

Experience

ExperienceFlow AI May 2024 – Present

Machine Learning Intern *Remote*

- Developing finite state machines and graph neural networks for enterprise applications
- Simulating, analyzing, and optimizing business operations using machine learning techniques

Amazon Aug. 2023 – Dec. 2023

OpenSearch Contributor *Remote*

- Selected as member of 2023 OpenSearch Contributor Initiative
- Contributed to the ml-commons repository by developing machine learning algorithms, unit tests, and plugins
- Collaborated with students, industry professionals, and Amazon Machine Learning Engineers worldwide

UC Irvine, Department of Physics & Astronomy Feb. 2022 – Jul. 2023

Researcher *Irvine, CA*

- Developed, trained, and tested TensorFlow/Keras deep learning models to address data scarcity issues in high momentum collision analysis with >90% accuracy
- Simulated particle collisions using MadGraph, Pythia8, Delphes, and ROOT and designed/implemented reconstruction algorithms in C++ and Python to predict particle mass with <2% error

Projects

AntiChess | *Python, Statistical Decision Making*

- Developed PyPI package to play and simulate antichess games with one or two players
- Implemented decision making techniques such as Minimax with alpha beta pruning and Monte Carlo Tree Search

Neural Navigator | *Graph Neural Networks, LightGCN*

- Developed deep-learning based recommender systems to recommend users activities and events in the Bay Area
- Implemented collaborative filtering using LightGCN and matrix factorization methods
- Built web application for user interaction using the React JS and Django frameworks

Physics Directed Reading Program | *Statistical Modeling, Machine Learning*

- Studied applications of statistical and thermal physics to machine learning
- Investigated statistical and machine learning methods in physics, focusing on Markov Chain Monte Carlo methods
- Delivered engaging presentation about the intersection of physics and machine learning to physics students

Certifications

Decision Making and Reinforcement Learning *Columbia University*

- Studied theoretical and mathematical foundations of reinforcement learning strategies for dynamic environments
- Implemented algorithms such as Q-learning and SARSA in Python

Game Theory *Stanford University*

- Studied multi and single player games, using mathematical modeling to optimize outcomes

Skills

Languages: C, C++, Python, R, Java, HTML/CSS, JavaScript, SQL
Frameworks: ROOT, Flutter, Flask, Mockito, ReactJS, React Native
Libraries: PyTorch, TensorFlow Keras, Pandas, NumPy, Matplotlib, SciKit-Learn, BeautifulSoup