

Divit Rawal

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EDUCATION

University of California, Berkeley

Aug. 2023 – Present

Physics and Computer Science

Berkeley, CA

Relevant Coursework: Data Structures, Deep Learning for Visual Data, Advanced Programming in R, Mathematical Physics, Computer Programs, Communication Networks, Information Devices and Systems, PCB Engineering
Launchpad AI/ML, Hands-On PCB Engineering Course Staff

EXPERIENCE

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

Neural Navigator *j 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 *j 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

Research-Engine *j Python, Flask, Svelte, Web Scraping, Natural Language Processing*

Led team of 3 to develop Research-Engine, helping users efficiently find and summarize information about a topic
Developed a full-stack web application hosted on an AWS EC2 instance using Flask and Svelte
Implemented web scraping and natural language processing to obtain and summarize information from Google

CERTIFICATIONS

Machine Learning Professional Certification

IBM

Studied data analysis, supervised, unsupervised, and semi-supervised learning with a focus on deep learning
Completed capstone project using machine learning to build recommender systems

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

Stanford/UBC Game Theory Certification

Stanford University

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

SKILLS

Languages: Python, R, C, C++, Java, HTML/CSS, JavaScript, SQL

Frameworks: ROOT, Flutter, Flask, TensorFlow/Keras, PyTorch, Mockito

Libraries: Pandas, NumPy, Matplotlib, SciKit-Learn, BeautifulSoup