Divit Rawal

✉ divit.rawal@berkeley.edu | 🌐 divitr.github.io | ⓞ divitr | in /in/divit-rawal

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 Sta

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 | *Graph Neural Networks, LightGCN*
- Developed deep-learning based recommender systems to recommend users activities and events in the Bay Area
- Implemented collaborative ltering 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

Research-Engine | *Python, Flask, Svelte, Web Scraping, Natural Language Processing*
- Led team of 3 to develop Research-Engine, helping users e ciently nd 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