Divit Rawal

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Education

University of California, Berkeley Aug. 2023 – Present
Physics and Mathematics, Electrical Engineering & Computer Science (Minor) *Berkeley, CA*

- 2023 National Merit Scholarship Finalist (awarded to <1% of students)
- Relevant Coursework: Data Structures, Information Devices and Systems, Computer Programs, Communication Networks, Advanced Programming in R, Mechanics and Relativity, Mathematical Physics, PCB Engineering

IBM Professional Certification in Machine Learning Jan. 2023 - Jun. 2023
Certificate *Remote*

- Studied the fundamentals of machine learning including regression, clustering, classification, deep learning, and reinforcement learning
- Completed capstone project using machine learning to build recommender systems

Experience

Amazon Aug. 2023 – Dec. 2023
OpenSearch Contributor *Remote*

- Selected as member of 2023 OpenSearch Contributor Initiative (<4% acceptance rate)
- Contributed to the opensearch-project/ml-commons GitHub repository by developing machine learning algorithms, unit tests, and plugins in Java
- Collaborated with undergraduate students, graduate students, and industry professionals across the globe under the mentorship of Machine Learning Engineers at Amazon

Department of Physics & Astronomy, UC Irvine 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 wrote reconstruction algorithms in C++ and Python to predict particle mass with <2% error

Projects

Physics Directed Reading Program | *Statistical Modeling, Machine Learning* Aug. 2023 – Present

- Studied applications of statistical and thermal physics to machine learning
- Investigated statistical and machine learning methods used in physics, with a focus on Markov Chain Monte Carlo simulations
- Delivered engaging presentation about the intersection of physics and machine learning to undergraduate adn graduate physics students

3-D Filament Fuser | *PCB Design, KiCad, Circuit Design* Sep. 2023 – Present

- Conceptualized and designed device that automatically joins 3-D filament together, allowing users to change filament color without interrupting their print
- Designed schematic, layout, and custom-printed circuit board in KiCad
- Presented final product to Apple engineers and UC Berkeley EECS faculty

Research-Engine | *Python, Flask, Svelte, Web Scraping, Natural Language Processing* Nov. 2022 – Apr. 2023

- Led a team of 3 to develop Research-Engine, a tool to help users efficiently find and access relevant information and research 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

Technical Skills

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