

# Divit Rawal

(425)-309-0699 | [divit.rawal@gmail.com](mailto:divit.rawal@gmail.com) | [divitrawal.com](http://divitrawal.com) | [github.com/divitr](https://github.com/divitr)

## EDUCATION

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### University of California, Berkeley

Aug. 2023 – Present

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

*Berkeley, CA*

- Relevant Coursework: Data Structures, Advanced Programming in R, Computer Programs, Communication Networks, Information Devices and Systems, PCB Engineering
- Hands-On PCB Engineering Course Staff (Spring 2024)
- 2023 National Merit Scholarship Finalist (awarded to <1% of students)

### IBM Professional Certification in Machine Learning

Jan. 2023 – Jun. 2023

*Certification*

*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

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### 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](https://github.com/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

### 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 wrote reconstruction algorithms in C++ and Python to predict particle mass with <2% error

## PROJECTS

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

Aug. 2023 – Dec. 2023

- 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 and graduate physics students

### 3-D Filament Fuser | *PCB Design, KiCad, Circuit Design*

Sep. 2023 – Dec. 2023

- 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

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

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

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