

# 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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### Kairos Academics

Apr. 2023 – Present

*Tutor*

*Remote*

- Provide one-on-one tutoring to high school students in math and science
- Develop personalized lesson plans and study strategies to address individual student needs and learning styles
- Monitor student progress and adapt teaching methods to ensure comprehension and academic growth

### 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

### SimpleMath Foundation

Aug. 2021 – Jun. 2023

*Head of Tutoring*

*Irvine, CA*

- Led a team of 11 tutors to provide academic support to children from underserved communities, helping improve their understanding and confidence in math
- Personally tutored 2 students each week, tailoring instruction to meet individual needs and learning styles
- Created and published a series of engaging and informative YouTube videos on key math concepts

## 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
- Watersort Solver** | *Flutter SDK, Dart, Java* Jul. 2022 – Nov. 2022
- Designed and developed Watersort Solver in Java and Flutter to quickly and accurately solve any watersort brainteaser
  - Published to Google Play Store

## 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