Vishal Bansal

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Education

University of California, Berkeley

B.S. Electrical Engineering & Computer Science *2021-2024 (Expected Graduation)*

Relevant Coursework

- The Structure & Interpretation of Computer Programs, Designing Info Devices & Systems 1, Multivariable Calculus, Data Structures, Physics for Scientists & Engineers 1 & 2

Technical Skills

Languages: Python, Java, HTML, CSS, SQL (databases)
Frameworks: PyTest, JUnit, Flask, MongoDB, React
Developer Tools: Git, Postman, Docker, VS Code, IntelliJ
Libraries: NumPy, pandas (data mining), TensorFlow (machine learning), REST API, Matplotlib

Work & Leadership Experience

Nanoscale Technology Research Group @ Berkeley August 2019 - Present

Software Developer & Researcher with Dr. Hayden Taylor *Berkeley, CA*

- Created a digital imaging system that projects, reconstructs, and optimizes STL part files (Python: Numpy, Matlab & MatPlotLib)
- Invented and computationally tested CAL–overprinting, a new manufacturing method with applications in nanomaterials and efficiency
- Researched an algorithm to model occlusions – regions without light – in reconstructed three-dimensional models

PlexTech Consulting @ Berkeley January 2022 – Present

Curriculum Student *Berkeley, CA*

- Completed Intro projects on Git developer tools and Flask/MongoDB backend management
- Developing website that compiles information about Berkeley classes, grades, and professors

ShelterTech March 2020 - January 2021

Software Developer & Volunteer *San Francisco, CA*

- Developed a program to organize data in Excel and automate data collection via Google Forms
- Created a script in Python and Ruby to upload data from a database to a central Homeless Service Guide

Aspiring Scholars Directed Research Program February 2020 - August 2020

Machine Learning Research *Fremont, CA*

- Created LSTM machine learning models using training data and gradient analysis
- Used machine learning techniques and nationally sourced databases to predict the future impact of COVID-19 across the United States

Data Science Research

- Used Python and R data mining libraries to analyze NASA, JPL, and CalTech datasets and calculate different planets' habitability

Mathcounts Middle School Outreach August 2019 - May 2021

Teacher and Coach *Pleasanton, CA*

- Guided a classroom of 50+ students and parents; Responsibilities included creating curriculum, preparing students for national exams, and fostering a classroom community

Publications

Object-space optimization of tomographic reconstructions for additive manufacturing March 2021

- Discusses the optimization algorithm currently being used in CAL's Digital Imaging system
- Studies manufacturing efficiency in situations involving occlusions

Modeling of light propagation in computed axial lithography with photopolymers December 2021

- Discusses the CAL digital-imaging system and it's ability to project and reconstruct STL files into optimized light propagations