Dhruv Malik

2424 Warring Street, Berkeley, California 94704 United States
(425) 615-9054 | dhruvmalik@berkeley.edu

Education

University of California, Berkeley — Berkeley, CA
B.A. Applied Mathematics **GPA: 3.87** — Class of 2018
Minor Computer Science

Objective: My goal is to utilize my background in computer science, mathematics and statistics to produce efficient solutions to the problems we find most challenging today.

Experience

Feldman Lab — Berkeley, CA
Intern — May 2014 – August 2016

- Developed a program which analyzes how well an animal performs on a stimulus recognition task. Algorithm returns a statistical measure for the probability that the animal may be using pattern recognition or other confounding cues to perform the task, as opposed to perfect sensory driven performance.
- Helped develop training protocols to train animals more effectively on the stimulus recognition task, and to minimize their use of pattern recognition.

Phi Kappa Psi — Berkeley, CA
Recruitment Chair (2015, 2016) — August 2014 – June 2018

- Managed a budget of $10,000.
- Duties included organizing recruitment events and interviewing potential new members.

Projects

- **Text Editor –** Built a functional text editor from scratch. Working features included word wrap, scroll bar, undo-redo, window resizing, font sizing, copy-paste, and cursor movement using arrow keys as well as mouse.
- **Maps –** Built a program using data from the OpenStreetMap project to create a map of Berkeley. Working features included zooming in and out of locations, and an A star driven algorithm which determined the shortest path between any two locations selected by the user on the map.
- **Scheme Interpreter –** Developed a scheme interpreter in Python. Interpreter could read Scheme expressions, handle primitive procedure calls, and evaluate as well as define symbols.

Relevant Coursework

- The Structure and Interpretation of Computer Programs (CS 61A) – Mastery of Python in addition to familiarity with SQL and Scheme. Concepts covered include recursion, functional programming, data abstraction, and object oriented programming.
- Data Structures (CS 61B) – Mastery of Java. Concepts covered include data structures, graph algorithms, sorting algorithms, dynamic programming and object oriented programming.
- Linear Algebra (Math 110) – Concepts covered include vector spaces, eigenvalues, eigenvectors, Jordan canonical form and inner product spaces.
- Concepts of Probability (Stat 134) – Concepts covered include Probability theory, sampling, discrete and continuous random variables, continuous distribution, joint distribution, dependence, central limit theorem, and Poison process
- Algorithms (CS 170) – Concepts covered include design and analysis of graph algorithms, greedy algorithms, dynamic programming, linear programming, complexity, and NP-completeness.
- Artificial Intelligence (CS 188) – Concepts covered include heuristics, search algorithms, Markov models, Bayesian nets, inference and sampling.
- Real Analysis (Math 104) – Concepts covered include the real number system, sequences and limits, topology, power series, uniform convergence, differentiation, integration and metric spaces.