VISHAL RAMAN

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EDUCATION

University of California - Berkeley(3.7) *August 2019 - Present*
Majors: *Mathematics, Computer Science*

Renyi Instutite - Budapest Semesters in Mathematics *August 2020 - Present*
Coursework: *Advanced Combinatorics, Hypergraph Theory*

The College Of New Jersey(4.0) *August 2018 - June 2019*
Coursework: *Real Analysis*

Mercer County Community College(4.0) *August 2017 - June 2018*
Coursework: *Multivariable Calculus, Linear Algebra, Differential Equations*

HONORS

American Invitational Mathematics Exam(AIME) Invitee *Spring 2019*

United States of America Physics Olympiad(USAPhO) *Spring 2019*
Honorable Mention

United States of America Computing Olympiad(USACO) *Spring 2018*
Gold Division

United States of America Mathematics Talent Search(USAMTS) *Spring 2018*
Bronze Medalist

RESEARCH EXPERIENCE

Renyi Institute, Research Intern *Fall 2020*
Group research in convex geometry under the supervision of Gergely Ambrus. We study relaxations of Helly's theorem in order to characterize transversal properties of families of convex sets.

UC Berkeley, Research Intern *Fall 2020*
Guided research in statistics/partial differential equations under the supervision of Tyler Maltba, Steve Evans. We use sparse regression and physically-informed neural networks(PINN) in order to render probability density functions(PDFs) or cumulative distribution functions(CDFs) for stochastic dynamical systems.

PROJECTS

Blackjack Decision Maker *Winter 2020*
Models the Blackjack card game as a Markov Decision Process (MDP) and finds optimal values through Value Iteration/Fixed-point iteration. The model takes in a counting strategy as user input.

Adversarial Games and Multi-Agent Search *Summer 2020*
We design agents for classic Pacman(including the ghosts), and implement minimax(w/ alpha-beta pruning) and expectimax search with custom evaluation functions(CS188 at Berkeley)

RELEVANT COURSEWORK

Computer Science - 61B: Data Structures, 170: Algorithms and Intractable Problems, 188: Artificial Intelligence
Math - 202a: Measure Theory and Topology, 202b: Functional Analysis, 218a: Probability Theory, 222a: Partial Differential Equations, 250b: Commutative Algebra, 258: Harmonic Analysis
200+ denotes graduate level coursework

Programming Languages: Python, Java, C++, R, LaTeX, SQL, HTML, CSS
Libraries/Frameworks: NumPy, pandas, TensorFlow, BigQuery, React.js