Prateek Anand

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My research interests are in developing novel AI/ML computational methods. Broadly, I am invested in deep learning, traditional machine learning, and statistical approaches that are scalable and interpretable. Current applications of my work are centered around genetics and published in RECOMB 2024 and Genome Research.

EDUCATION

UCLA | Ph.D. Computer Science **2024 - 2029**

Advisor: Dr. Sriram Sankararaman
I am currently investigating how to better predict human complex traits by strategically incorporating genetic features using statistical modeling. I am also exploring generative models and imputation for genetic data, as well as speeding up admixture models through neural approaches.

UCLA | B.S. Computer Science **2020 - 2024**

PROFESSIONAL EXPERIENCE

UCLA Computer Science | Sriram Lab **Jun 2022 - Present**

Researcher

- Developing scalable machine learning/statistical software to understand human genetic architecture (relationship between genetics and traits)
- Projects: QuadKAST (co-first author) and FAME

Research Intern (Bruins in Genomics)

- Evaluated novel nonlinear explanation method for machine learning models on simulated genetic data (form of symbolic regression used to represent complex black box models)
- Presented at UCLA poster symposium

Machine Learning Reader

- UCLA CM146: Introduction to Machine Learning
- Graded written assignments/exams and provided feedback

Stanford University School of Medicine | Curtis Lab **Jun 2023 – Jan 2024**

Research Intern (Canary CREST Program for Early Cancer Detection)

- Early detection of blood cancer through computational modeling and inference, refined model built using approximate bayesian computation
- Presented at Stanford poster symposium

UCLA Jonsson Comprehensive Cancer Center | Boutros Lab **Jan 2021 - Apr 2022**

Research Assistant

- Updated, maintained, and evaluated CI/CD HATCHet pipeline for use on lab cluster compute server (tool for quantifying/locating copy-number aberrations in human cancer samples)

PUBLICATIONS

QuadKAST | Genome Research **Sep 2024**

- Fu, B.*, Anand, P.*, Anand, A.*, Mefford, J., & Sankararaman, S. (2024). *A Scalable Adaptive Quadratic Kernel Method for Interpretable Epistasis Analysis in Complex Traits*. https://doi.org/10.1101/2024.03.09.584250

FAME | Preprint **Sep 2023**

- Fu, B.*, Pazokitoroudi, A.*, Xue, A., Anand, A., Anand, P., Zaitlen, N., & Sankararaman, S. (2023). *A Biobank-Scale Test of Marginal Epistasis Reveals Genome-Wide Signals of Polygenic Epistasis*. https://doi.org/10.1101/2023.09.10.557084

SKILLS

Programming languages: Python, C++

Frameworks: Scikit-learn, PyTorch, Numpy, Pandas, Git

Courses: Machine Learning, Artificial Intelligence, Neural Networks and Deep Learning, Software Engineering and Construction, Data Structures, Algorithms and Complexity, Linear Algebra, Statistics and Probability, Optimization, Machine Learning in Genetics, Algorithms in Bioinformatics

Other: Probabilistic Models, Hypothesis Testing, Cluster Computing

AWARDS

Warren Alpert Computational Biology and AI Fellow: Graduate Training Fellowship **2024**

NCI Scholarship: Funding for Canary CREST Research Program **2023**

NSF REU Scholarship: Funding for Bruins in Genomics Research Program **2022**

UCLA Dean's Honors List: Winter 21, Spring 21, Fall 21, Winter 22, Fall 22, Winter 23

Andy Grove Intel Scholarship: Education Scholarship for Academic Excellence **2020**

Valedictorian: Homestead High School **2020**