SAATVIK KHER

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EDUCATION

Pomona College   *Claremont, CA*

Bachelor of Arts, Computer Science & Mathematics   Expected Graduation: May 2024

GPA: 3.97

Relevant Coursework: Algorithms, Statistical Theory, Real Analysis, Computational Statistics, Neural Networks, Linear Models, Linear Algebra, Probability, Discrete Math, Functional Programming, Data Structures, Computer Systems, Applied Algorithms, Managing Complex Systems, Vector Calculus.

HONORS AND AWARDS

- Kenneth Cooke Summer Research Fellowship. May 2023. *$5,000*.
- Pomona College Summer Undergraduate Research Project (SURP). May 2022. *$5,600*.
- Pomona College Scholar. Dec 2020, May 2022, May 2023.
- Don Ylvisaker Best Insight Award (Honorable Mention) - American Statistical Association DataFest. *May 2022*.

PUBLICATIONS *co-first

JOURNALS

- Kammarauche Aneni, Ching-Hua Chen, Jenny Meyer, Youngsun T. Cho, Zachary Chase Lipton, **Saatvik Kher**, Megan G. Jiao, Isabella Gomati de la Vega, Feza Umutoni, Robert A. McDougal, Lynn E. Fiellin. Identifying Game-Based Digital Biomarkers of Cognitive Risk for Adolescent Substance Misuse: Protocol for a Proof-of-Concept Study. *JMIR Res Protoc.* 11/23/2023. doi:10.2196/46990

CONFERENCES

- Kammarauche Aneni, Ching-Hua Chen, Gaoqianxue Liu, **Saatvik Kher**, Lynn Fiellin. A machine learning model using in-game data for predicting unhealthy substance use among adolescents. *Machine Learning for Healthcare Conference*, NY, August 2023.

IN PREPERATION

- Divij Jain, **Saatvik Kher***, Lena Liang, Yufeng Wu, Ashley Zheng, Xizhen Cai, Anna Plantinga, Elizabeth Upton. Improving and Evaluating Machine Learning Methods for Forensic Shoeprint Matching. *Journal of the Royal Statistical Society Series C: Applied Statistics.* [under review].
- Divij Jain, **Saatvik Kher***, Lena Liang, Yufeng Wu, Ashley Zheng, Xizhen Cai, Anna Plantinga, Elizabeth Upton. SoleMate: An End-To-End System for Shoeprint Pattern Matching (Open-Source Software). [in preparation].

RESEARCH EXPERIENCE

Williams College SMALL (NSF REU)   Jun – Aug 2023

Williamstown, MA

- Evaluated the robustness of machine learning methods for point-set registration across five simulated crime scene scenarios.
- Improved model robustness against distribution shifts using novel clustering and phase correlation similarity features.
- Designed and published an open-source python package for explainable shoeprint matching and classification.

Yale University School of Medicine   Jun – Sep 2022

New Haven, CT (Remote)

- Analyzed 20M rows of videogame log data in R to identify features predictive of substance misuse in teens.
- Engineered 300+ features; built a regularized regression and random forest classifier for the high dimensional data.
- Conducted hypothesis testing, feature selection and hyperparameter tuning to improve model AUC.

Pomona College Department of Mathematics and Statistics   May – Jul 2022

Claremont, CA

- Analyzed racial bias and missing data from the Stanford Open Policing Project, containing 200M+ traffic stops in the US.
- Developed a framework to evaluate regression models with high missingness in SQL; Improved query performance by 30%.
- Implemented multi-threading to parallelize aggregate and mapping functions, reducing runtime by 260%.

PRESENTATIONS

- *[Best Poster Award]* Simon Angoluan, Divij Jain, **Saatvik Kher**, Lena Liang, Yufeng Wu, Ashley Zheng . Evaluating Machine Learning Methods for Shoeprint Matching. *NESS-NextGen Data Science Day*. October 2023. [Poster]
- **Saatvik Kher**, Jo Hardin. Open Policing Project: Creating a SQL Database. *Claremont Center for Mathematical Sciences*. September 2023. [Poster]
- Simon Angoluan, Divij Jain, **Saatvik Kher**, Lena Liang, Yufeng Wu, Ashley Zheng . Evaluating Machine Learning Methods for Shoeprint Matching. *Williams College Summer Science Research Poster Session*. August 2023. [Poster]
- **Saatvik Kher**, Kyle Torres, Jo Hardin. Characterizing Missing Traffic Stop Data. *Claremont Center for Mathematical Sciences*. September 2022. [Poster]

TEACHING EXPERIENCE

TEACHING ASSISTANT
- CSCI158 Machine Learning (Fall 2023)
- MATH158: Statistical Linear Models (Spring 2023)
- CSCI054: Discrete Math & Functional Programming (Fall 2022)

GRADER

- MATH067: Vector Calculus (Spring 2022)
- MATH060: Linear Algebra (Fall 2021)

WORK EXPERIENCE

Director of Projects (AI/ML)   May 2023 – Present

P-ai • Website   *Claremont, CA*
- Directed and supervised 10 machine learning projects for the largest technology incubator in the Claremont colleges.
- Collaborated with industry partners and projects managers to increase accessibility to data science and software engineering.
- Led outreach and recruitment efforts, overseeing a 2x increase in underrepresented gender group representation in projects.

Product Manager   Aug 2022 – Present

Pomona College • Repository • Website   *Claremont, CA*
- Led 4 developers in building features for the student body website using Ruby on Rails, increasing webpage visits by 35%.
- Maintained features including polls, course schedulers, and news feed that serve 8000+ students of the Claremont Colleges.
- Utilized Docker and Git to ensure continuous integration and decrease dev startup time by 90%.

Founder   Sep 2022 – May 2023

p-recs • Repository • Website   *Claremont, CA*
- Managed 8 developers to build a college course recommendation system, increasing interdisciplinary academic engagement.
- Created a full-stack web app with Flask, PostgreSQL, and GloVe NLP; Used d3.js and CSS to enhance user experience.
- Built a CI/CD pipeline with Heroku, Cloudflare and GitHub, increasing test coverage by 80% and improving dev efficiency.

Software Engineer Intern   Jan – May 2022

Navfeas   *Claremont, CA*
- Built a FastAPI in python to visualize geospatial and time-series data for a marine conservation software company.
- Mapped whale migration patterns from a Neo4j database using graph algorithms, improving query performance by 60%, allowing for real-time species tracking, and reducing fishing bycatch.
- Implemented Docker containers to ensure scalability and reduce server infrastructure costs.

Project Manager Intern   Apr – Jul 2021

Atidan Technologies   *Mumbai, India*
- Spearheaded transitioning 100+ employees to Agile project management, reducing turnaround time by 50%.
- Trained PMs and developers on Scrum methodologies, product life cycles, and deployment in Azure DevOps.
- Designed software architecture diagrams for 2 full-stack web-apps, created wireframes and UI/UX mockups for 3 mobile apps and wrote API & SRS documentation.

TECHNICAL SKILLS

Proficient: Python, R, SQL, Java, Ruby on Rails, HTML, CSS, Coq, LaTeX, Bash, SML • **Familiar with:** C, JavaScript

Tools: PyTorch, AWS, Docker, Git, Agile Scrum Methodologies, Azure DevOps, TensorFlow, Figma, Jira, scikit-learn

REFERENCES

Johanna S. Hardin

Professor of Mathematics and Statistics, Pomona College

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Anna Plantinga

Assistant Professor of Statistics, Williams College

amp9@williams.edu

Tzu-Yi Chen

Professor of Computer Science, Pomona College

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David R. Kauchak

Professor of Computer Science, Pomona College

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