VENKATESH SIVARAMAN

PROFILE

Current postdoc at UCSF focused on **human-centered AI in healthcare**. Bringing experience in human-AI interaction, machine learning in health, and data visualization to **design and validate useful, responsible AI tools for high-stakes decisions**. Currently seeking tenure-track research faculty positions.

EDUCATION

Ph.D., Carnegie Mellon University August 2020–December 2025
- *Department:* Human-Computer Interaction Institute (HCII)
- *Thesis:* Human-Centered AI for Expert Decision-Making
- *Advisor:* Adam Perer

S.B., Massachusetts Institute of Technology September 2016–May 2020
- Computer Science and Molecular Biology, Minor in Music
- *Final GPA:* 5.0

PUBLICATIONS

Conference Papers

1. **Sivaraman, V.**, Mason, E., Li, M., Tong, J., King, A.J., Kahn, J.M., Perer, A. Intelligent Reasoning Cues: A framework and case study of the roles of AI information in complex decisions. To appear at *ACM CHI 2026*.

2. Ma, Z., Boyce, R.D., Perer, A., **Sivaraman, V.** TempoQL: A readable, precise, and portable query system for electronic health record data. Poster presentation at *AHLI Machine Learning for Health (ML4H) 2025*.

3. **Sivaraman, V.**, Vaishampayan, A., Li, X., Buck, B.R., Ma, Z., Boyce, R.D., Perer, A. Tempo: Helping data scientists collaboratively specify predictive modeling tasks. Paper presentation at *ACM CHI 2025*.

4. **Sivaraman, V.**, Li, Z., Perer, A. Divisi: Interactive search and visualization for scalable exploratory subgroup analysis. Paper presentation at *ACM CHI 2025*.

5. Boggust, A., **Sivaraman, V.** (*co-first authors*), Assogba, Y., Ren, D., Moritz, D., Hohman, F. Compress and Compare: Interactively evaluating efficiency and behavior across ML model compression experiments. Paper presentation at *IEEE VIS 2024*.

6. **Sivaraman, V.**, Elavsky, F., Moritz, D., Perer, A. Counterpoint: Orchestrating large-scale custom animated visualizations. Short paper presentation at *IEEE VIS 2024*.

7. Yildirim, N., Zlotnikov, S., Sayar, D., Kahn, J.M., Bukowski, L.A., Amin, S.S., Riman, K.A., Davis, B.S., Minturn, J.S., King, A.J., Ricketts, D., Tang, L., **Sivaraman, V.**, Perer, A., Preum, S.M., McCann, J., Zimmerman, J. Sketching AI concepts with capabilities and examples: AI innovation in the intensive care unit. *ACM CHI 2024*.

8. **Sivaraman, V.**, Bukowski, L., Levin, J., Kahn, J., Perer, A. Ignore, trust, or negotiate: Understanding clinician acceptance of AI-based treatment recommendations in health care. Paper presentation at *ACM CHI 2023*.

9. Kawakami, A., **Sivaraman, V.** *(co-first authors)*, Stapleton, L., Cheng, H., Perer, A., Wu, S., Zhu, H., Holstein, K. (2022). "Why do I care what's similar?" Probing challenges in AI-assisted child welfare decision-making through worker-AI interface design concepts. Paper presentation at *ACM DIS 2022*.

10. **Sivaraman, V.**, Wu, Y., & Perer, A. (2022). Emblaze: Illuminating machine learning representations through interactive comparison of embedding spaces. Paper presentation at *ACM IUI 2022*.

11. Kawakami, A., **Sivaraman, V.**, Cheng, H., Stapleton, L., Cheng, Y., Qing, D., Perer, A., Wu, S., Zhu, H., & Holstein, K. (2022). Improving human-AI partnerships in child welfare: Understanding worker practices, challenges, and desires for algorithmic decision support. *ACM CHI 2022*.

12. Cheng, H., Stapleton, L., Kawakami, A., **Sivaraman, V.**, Cheng, Y., Qing, D., Perer, A., Holstein, K., Wu, S., Zhu, H. (2022). How child welfare workers reduce racial disparities in algorithmic decisions. *ACM CHI 2022*.

13. **Sivaraman, V.**, Yoon, D., & Mitros, P. (2016). Simplified audio production in asynchronous voice-based discussions. Presented at *ACM CHI 2016*.

Journal Papers

1. **Sivaraman, V.**, Kwak, Y., Kuza, C., Yang, Q., Adamson, K., Suda, K., Tang, L., Gellad, W., Perer, A. Static algorithm, evolving epidemic: Understanding the potential of human-AI risk assessment to support regional overdose prevention. *Proceedings of the ACM on Human-Computer Interaction* 9(2), Article CSCW174.

2. Swanson, S., **Sivaraman, V.**, Grigoryan, G., Keating, A. (2022). Tertiary motifs as building blocks for the design of protein-binding peptides. *Protein Science* 31(6).

3. Wu, J., **Sivaraman, V.**, Kumar, D. (*first three authors equal contribution*), Banda, J. M., & Sontag, D. (2021). Pulse of the pandemic: Iterative topic filtering for clinical information extraction from social media. *Journal of Biomedical Informatics* 120.

Workshops and Demos

1. **Sivaraman, V.**, Morrison, K., Epperson, W. *(first three authors equal contribution)*, Perer, A. Over-relying on reliance: Towards realistic evaluations of AI-based clinical decision support. *Envisioning the Future of Interactive Health Workshop* at *CHI 2025*.

2. Park, U., **Sivaraman, V.**, Perer, A. (2024). How Consistent are Clinicians? Evaluating the Predictability of Sepsis Disease Progression with Dynamics Models. *Time Series for Health Workshop* at *ICLR 2024*.

3. Newman-Griffis, D., **Sivaraman, V.**, Perer, A., Fosler-Lussier, E., & Hochheiser, H. (2021). TextEssence: A tool for interactive analysis of semantic shifts between corpora. *NAACL Systems Demonstration*.

EMPLOYMENT

Postdoctoral Scholar, UC San Francisco — January 2026 - present

- Supervised by Profs. Jean Feng and Julian Hong and supported by the Weill Cancer Hub West, building agentic AI tools to help clinical experts leverage large-scale multimodal cancer data

Consultant, Wood Wide AI — May 2025 - present

- As consultant during early founding stages, designed and implemented user interfaces for human-in-the-loop machine learning

Machine Learning Research Intern, Apple — May - September 2023

- Developed user-centered tools for machine learning model compression and evaluation, resulting in a publication at *IEEE VIS 2024*

Health Informatics Intern, Verily Life Sciences — May - August 2022

- Developed self-supervised deep learning approaches to characterize heart failure disease states from clinical notes

Software Engineering Intern, Verily Life Sciences — May - August 2019

- Worked on the Clinical Studies Platform Data Science team
- Designed and implemented an Apache Beam pipeline using both novel and existing NLP algorithms to process the ClinicalTrials.gov database

Software Engineering Intern, Apple — May - August 2017

- Developed software in Swift supporting the CarPlay, HomeKit, and MFi certification programs

- One of three projects selected to present to Apple VP of Product Integrity

Self-Employed, Base 12 Innovations — 2010 - 2020
- Developed seven iOS apps with over 750K total downloads, including a pioneering interactive geometry system (Isosceles) and the de-facto MIT course planning app (FireRoad)

TEACHING AND MENTORING EXPERIENCE

Teaching Assistantships

Machine Learning for Healthcare, CMU (Fall 2024)
- *Instructor:* Adam Berger
- Led office hours and mentored students' final projects

Programming Usable Interfaces, CMU (Fall 2022)
- *Instructor:* Alexandra Ion
- Prepared and led a full semester of lab sessions and led office hours

Interactive Data Science, CMU (Spring 2022)
- *Instructor:* Adam Perer
- Prepared and led several interactive in-class labs and workshops, and led office hours

Fundamentals of Music Processing, MIT (Fall 2019)
- *Instructor:* Eran Egozy
- As the only TA for the class, led office hours, helped prepare lecture, lab, and homework materials

Guest Lectures

Human-AI Interaction, CMU (Spring 2025)

Machine Learning in Healthcare, CMU (Fall 2024)

Machine Learning and Sensing in Healthcare, CMU (Fall 2024)

Data Visualization, CMU (Fall 2023)

Interactive Data Science, CMU (Spring 2022)

AI/Machine Learning Research Bootcamp, summer camps for high school students (Summers 2021 - 2024)

Fundamentals of Music Processing, MIT (Fall 2019)

Research Mentees

1. **Ryan Ng**, undergraduate (Fall 2025)

2. **Jessica Tong**, undergraduate REU (Summer 2025) **paper co-author*
3. **Maxwell Huang**, undergraduate (Spring 2025)
4. **Ellen Li**, masters (Spring 2025) **paper co-author*
5. **Ziyong (Jackson) Ma**, undergraduate (Summer 2024 - present) **paper co-author*
   Selected for CMU Summer Undergraduate Research Fellowship
6. **Octavius Tan**, undergraduate (Summer 2024)
7. **Zexuan Li**, undergraduate/masters (Spring 2024 - Fall 2024) **paper co-author*
   Now PhD student at University of Michigan School of Information
8. **Maggie Cai**, undergraduate (Spring 2024)
9. **Anika Vaishampayan**, masters (Fall 2023 - Spring 2024) **paper co-author*
10. **Yejun (Ariel) Kwak**, undergraduate (Spring 2023) **paper co-author*
11. **Unnseo (Grace) Park**, undergraduate/masters (Fall 2022 - present) **paper co-author*
    Now software engineer at Amazon
12. **Medha Palavalli**, undergraduate (Fall 2022)
13. **Claire Chen**, undergraduate (Fall 2022)
14. **Yiwei Wu**, undergraduate (Summer 2021) **paper co-author*

AWARDS AND GRANTS

Graduate Research Fellowship, National Science Foundation 2022 - 2025

Fellowship in Digital Health, CMU Center for Machine Learning and Health 2022 - 2023

Merck Prize, MIT 2020
- For research and academic performance in biophysical or bioinformatics sciences
- Awarded to one student in the MIT Biology department each year

Louis Sudler Prize in the Arts, MIT 2020
- MIT Institute Award given annually to one graduating senior for music, theater, painting, sculpture, design, architecture, or film

ADDITIONAL RESEARCH EXPERIENCE

Keating Lab, MIT Biology Department — January 2018 - January 2020
- Advised by Prof. Amy Keating
- Built a flexible high-throughput Python pipeline to compute and predict protein binding affinities

- Developed a C++ toolkit for designing novel peptides, and an 3D visualization tool to render those peptides around a known protein
- Coauthor on two manuscripts pending submission

Structural Bioinformatics Lab, Pompeu Fabra University — June - August 2018
- Advised by Prof. Baldo Oliva
- Created machine learning models to predict mutation-induced changes in protein-protein and DNA-transcription factor interactions

Kloczkowski Lab, Nationwide Children's Hospital — 2014 - 2016
- Advised by Prof. Andrzej Kloczkowski
- Developed a novel algorithm to predict protein structure based on statistics of amino acid orientations

SKILLS

- *Techniques:* Deep learning, data visualization, NLP, UI design, computer graphics, qualitative HCI methods, crowd-work studies
- *Programming languages:* Python, Swift, JavaScript (7+ years); Java, C++, C#, SQL (1+ years)
- *Tools:* PyTorch, TensorFlow, iOS/Android SDKs, Apache Beam, BigQuery, OpenGL, Vue, Svelte, Figma
- Advanced Spanish speaker
- Classical pianist