Mark S. Kim

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Education

San Francisco State University — 2023 to Present
Data Science and Artificial Intelligence, M.S.
GPA: 4.00
Anticipated Graduation: May 2025

San Francisco State University — 2018 to 2023
Computer Science, B.S.
GPA: 4.00
Mathematics: Advanced Studies, B.A.
GPA: 3.98

Research & Fellowships

Graduate Research Assistant — Aug 2023 to Present
San Francisco State University – San Francisco, CA
Principal Investigator: Dr. Hui Yang
AdvisingGPT: Foundation Models for Student Advising

An exploration of using foundation models such as ChatGPT, Mistral, Llama3, and Google Gemini Pro, to provide automated course equivalency evaluation and personalized program roadmaps to maximize student success rates. The techniques employed include: prompt engineering, in-context learning, and instruction fine-tuning of foundation models; document-level embeddings search and ranking; and retrieval augmented generation. Ongoing performance evaluation is executed with confusion matrices, F1-score, and ROC/AUC.

Program Lead/Graduate Research Assistant — Jan 2023 to Present
San Francisco State University – San Francisco, CA
Principal Investigator: Dr. Anagha Kulkarni
Artificial Intelligence Scholarships that Improve
Academic Achievement, Retention, and Career Success (AI-STAARS)

Lead a three pronged support system to improve student success by reinforcing foundational knowledge, providing intensive advising, and engaging students in a winter and summer accelerated pathways Machine Learning and AI program. Besides providing these activities, the program was developed to investigate how the program could improve students' sense of belonging and identity with the field of Computer Science, and the effect that they may have on students' retention and success. Qualitative research is occuring through observations of student engagement during discussions, interviews, and surveys.

Research Engineering Intern — Jun 2022 to Aug 2022
Cofense Inc. – Leesburg, VA
Research Supervisor: Chip McSweeney, Senior Research Engineer
Phishing Emails: Clustering and Analysis

An investigation of clustering for the early detection and categorization of phishing emails with an emphasis on computational speed and performance. Python C extensions that parse and analyze emails were restructured and optimized, which reduced memory usage by 95% and increased data utilization by 5%. Similarly, development and validation of thead-based and process-based asynchronous parallelization of the Python code base reduced processing time by 80%. Tradeoffs between dimensional reduction (PCA) and maintaining data precision were examined and analyzed.

Independent Study and Research Literature Review — Jan 2022 to May 2022
San Francisco State University Department of Mathematics – San Francisco, CA
Research Supervisor: Dr. Serkan Hosten
Graphical Models for Brain Networks

Studied and explored *Graphical Models* by Steffen Lauritzen which culminated in an examination of the research completed by Ranciati, Saverio et al. in "Fused graphical lasso for brain networks with symmetries."

NSF REU Scholar and Researcher Jun 2021 to Aug 2021
University of Houston Department of Computer Science – Houston, TX
Funding by the National Science Foundation
Principal Investigator: Dr. Ernst Leiss
Research Supervisor: Dr. Ionnis Pavlidis
Frontiers of Data-Driven Computing REU

Developed and implemented multi-threaded retrieval algorithms for over 10 million records of affective research data (documents and authors) from Scopus, PubMed, and Web of Science. Performed exploratory clustering and co-occurrence matrix analysis of retrieved data to facilitate the investigation of a quantitative history of affective research.

Innovation and Entrepreneurship Fellow Sept 2020 to May 2021
San Francisco State University Lam Family College of Business – San Francisco, CA
Faculty Director: Dr. Sybil Yang
COB Innovation and Entrepreneurship Fellowship

Collaborated with co-founders to design and develop a software-based test preparation platform for disenfranchised students.

Undergraduate Research Assistant Apr 2020 to Jun 2020
San Francisco State University Department of Mathematics – San Francisco, CA
Research Supervisor: Dr. Shandy Hauk
Remote Instruction Pedagogy in Mathematics

Provided an academic literature review of research in pedagogical best practices for remote instruction. This review was to inform new research in remote instruction in response to the COVID-19 pandemic.

Undergraduate Research Assistant Nov 2019 to Jan 2020
San Francisco State University Department of Mathematics – San Francisco, CA
Research Supervisor: Dr. Alexandra Piryatinska
Change-point Analysis Algorithm Development

Attended workshops in numerical methods and statistics theory in preparation for research in change-point analysis and algorithm development. Studied completed change-point analysis research and began work on adapting existing Matlab code to Python.

Honors & Awards

First place final presentation – Frontiers in Data-Driven Computing REU, University of Houston Aug 2021

Finalist – Entrepreneurship Symposium Innovation Pitch Competition, San Francisco State University May 2021

Dean's List, San Francisco State University 2018, 2019, 2020, 2021, 2022, 2023

Organizations & Leadership

Association for Computing Machinery (ACM), SFSU Student Chapter Sept 2019 to Present
Graduate Mentor, May 2024 to Present
Treasurer, May 2023 to May 2024
President, Jan 2022 to May 2023

SF Hacks May 2022 to Present
Graduate Mentor, May 2024 to Present
Treasurer, May 2022 to May 2024

CS{Research} Club Aug 2023 to Present
President/Founder, Aug 2023 to Present

Artificial Intelligence Club Aug 2023 to Present
Treasurer, Aug 2023 to Present

Society for Industrial and Applied Mathematics (SIAM) Oct 2021 to Present

Employment History

Program Lead/Graduate Researcher — Jan 2023 to Aug 2023
San Francisco State University - San Francisco, CA
Artificial Intelligence Scholarships that Improve Academic Achievement, Retention, and Career Success (AI-STAARS)

Graduate Researcher — Aug 2023 to Present
San Francisco State University - San Francisco, CA
Research in Foundation Models for Student Advising

Mathematics Program Liaison — Jan 2024 to May 2024
CS Program Liaison — Aug 2023 to Dec 2023
San Francisco State University - San Francisco, CA
Center for Science and Mathematics Education (CSME)

Facilitator — Jan 2021 to May 2023
San Francisco State University - San Francisco, CA
Center for Science and Mathematics Education (CSME)

Undergraduate Teaching Assistant — Aug 2019 to Dec 2020
San Francisco State University - San Francisco, CA
Department of Mathematics

Financial Center Manager, AVP — 2017 to 2018
Bank of America - Belmont, CA

Founder/CEO — 2005 to 2017
Kindred Enterprises Incorporated - San Francisco, CA

Landing Support Specialist, Corporal — 1995 to 2001
United States Marine Corps Reserve - San Jose, CA

Skills & Competencies

Languages: Python, Java, C/C++, JavaScript, HTML, CSS, MySQL, Matlab, R

Web Frameworks/Environments: Node.js, Express.js, React.js, Handlebars.js

Libraries: PyTorch, Pandas, NumPy, scikit-learn, Matplotlib, BeautifulSoup, Plotly, Dash

Deployment/Cloud Computing: AWS (EC2, S3, and Route53), Google Cloud (Compute Engine, Storage, Domains), Google Analytics, Oracle Cloud Infrastructure, NGINX

Development Platforms: Docker, Git, Jupyter, Conda

Other: LaTeX, Adobe Creative Suite (XD, Illustrator, InDesign, Photoshop)

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