

ANJANA YATAWARA

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AREAS OF EXPERTISE RELEVANT FOR THE GRANT

I am a statistician and mathematics educator specializing in time series analysis and AI-integrated teaching and learning in STEM. My expertise includes designing and evaluating LLM-based tutoring systems, developing Custom GPT tutors and prompt frameworks for statistics and mathematics education, and embedding AI literacy, critical thinking about AI, and ethical use into undergraduate and graduate curricula. As Co-Principal Investigator on the California Learning Lab–funded ELEVATE grant, I have led interdisciplinary work on AI-enhanced learning experiences, faculty development, and curriculum redesign. At CSUB I have led AI initiatives across departments — including AI instructional modules, faculty workshops, and student research on local LLM applications — positioning me to assist the design and implementation of an AI companion for mathematics and statistics courses and to support faculty adoption at scale.

EDUCATION

Missouri University of Science and Technology, USA

August 2017 – July 2023

Doctor of Philosophy in Mathematics — Statistics Emphasis

University of Peradeniya, Sri Lanka

2012 – 2016

B.Sc. Special Degree in Statistics

TEACHING EXPERIENCE

Assistant Professor, California State University, Bakersfield

August 2023 – Present

Teaching undergraduate and graduate courses in statistics and mathematics.

Graduate Teaching Assistant, Missouri S&T

August 2017 – July 2023

Led courses in statistics, providing instruction and support to undergraduate students.

ARTIFICIAL INTELLIGENCE–RELATED EDUCATIONAL RESEARCH AND ACTIVITIES

California State University, Bakersfield — Fall 2023 – Present

- Lead author, “From Answer Generators to Thinking Partners: Scaffolded LLM Tutors in Statistics Education,” *Journal of Statistics and Data Science Education* (revision under review, Manuscript ID 258803717). Developed a framework for AI-driven tutoring, prompt engineering, and ethical classroom integration using Custom GPTs.
- Lead author, “AI Integration in Undergraduate Probability Theory: A Three-Section Comparison of Traditional, AI-Integrated, and Hybrid Instruction,” submitted to *Stat* (Wiley/ISI), 2026. Reports a Fall 2025 randomized comparison and Spring 2026 follow-up (N = 93) demonstrating measurable, accumulating gains from SMARTS-scaffolded Custom GPT integration in an upper-division probability course at a Hispanic-Serving Institution.
- Co-author, “WIP: Structured AI Tutoring in Engineering Education,” 2025 IEEE Frontiers in Education Conference (FIE), pp. 1–5. Contributed AI prompt design methodology and interdisciplinary evaluation framework.
- Co-author, “Computer-Aided Instruction for K–12 Teachers: A Cognitive Apprenticeship Approach to LLM Integration,” 2025 Artificial Intelligence × Humanities, Education, and Art (AIXHEART), pp. 13–16. Contributed theoretical framing using the cognitive apprenticeship model, prompt-engineering design (state priming, few-shot, and negative prompting), and interdisciplinary evaluation of Custom GPT modules for K–12 professional development. Supported by the California Learning Lab ELEVATE grant.
- Session lead, NextTech Kern (Oct. 2, 2025): “Build Your AI Teaching Assistant” — a showcase of open-source frameworks and OpenAI technologies to build customized GPT-based teaching assistants and tutors that enhance student engagement and instructional support.
- Session lead, NextTech Kern (Oct. 2, 2025): “AI in Business,” in collaboration with Keelan Schule, Solutions Engineer, OpenAI. Hands-on with OpenAI: practical tips and examples from OpenAI and industry partners.
- Panelist, AI in Education Day, National Workshop on Data Science Education, University of California, Berkeley (June 23–27, 2025). Presented “Findings from ELEVATE: Enhancing Learning Experiences Via AI Techniques” on the California Learning Lab grantee panel.
- Developed (with Kim Mishkind, MBA) an AI instructional module for the first-year seminar course BA 1028 at CSUB. Designed a generalizable framework to integrate AI literacy, prompt engineering, and ethical use into freshman seminar courses across disciplines.
- Built and deployed *AI from the Ground Up* — a 14-module open educational AI literacy course covering foundational concepts, prompt engineering, ethical use, and applied workflows. Deployed publicly for use by students, faculty, and staff across disciplines.

- Proposed the **CSUB AI Essentials Certificate**, a campus-wide interdisciplinary program to develop AI literacy among students, faculty, and staff, emphasizing responsible AI usage and practical skills across disciplines.
- **Founded and directed the CSUB Hub for Statistics, Applied AI, and Data Science Innovation (Science III: Room 214)**, a center supporting AI-integrated teaching, interdisciplinary research, and GPU-enabled infrastructure to advance ethical, applied AI education across the university. The Hub houses high-performance workstations and servers capable of training large language models and running advanced simulations. Funded by Dr. Lam and assigned for development by Dr. Rush, it fills a critical gap in research resources: prior to its establishment, no Mathematics or Statistics faculty had access to dedicated computational resources.

STATISTICAL AND APPLIED RESEARCH

- Published: Yatawara, A., Ko, K., & Rodriguez, C. (2025). *"Income-based exposure disparities across California counties, 2000–2023: a generalizable statistical framework."* *Environmental Research: Health*, DOI: 10.1088/2752-5309/ae4134. Co-authored with CSUB undergraduate researchers; introduces a reproducible, multi-pollutant county-level statistical framework with openly shared code and data.
- Under review: *"The Shape of Volatility Memory,"* submitted to *Journal of Business & Economic Statistics* (Manuscript ID JBES-RA-2026-0353).
- Under review: *"The Timescale Structure of Volatility Memory,"* submitted to *Journal of Financial Econometrics* (Manuscript ID JFEC-2026-125).
- Under review: *"A Multiplicative-Factor Multi-Frequency Negative Binomial INGARCH Model,"* submitted to *Journal of Time Series Analysis*. Extends the multiplicative-factor framework of Conrad & Engle (2025) to integer-valued count data; empirically validated on 1,810 U.S. hospital weekly COVID-19 admissions, 11 CDC ILINet influenza series, and 44 Project Tycho polio series.
- Under review: *"Cross-Pollutant Identification of a Distributional Regime Change in U.S. Air Pollution: Higher Moments, Wildfire, and Density Forecasting,"* submitted to *Environmetrics*.

EXTERNAL RESEARCH GRANTS

- Co-PI, *"ELEVATE: Enhancing Learning Experiences Via AI Techniques,"* California Learning Lab AI FAST Challenge (\$150,000; Jan. 2025 – June 2026). Interdisciplinary project integrating AI-driven learning strategies into STEM education. PI: Dr. Alberto Cruz (CSUB Computer & Electrical Engineering and Computer Science).
- PI, *"Air Pollution Disparities in California, 2000–2025: Examining Environmental Inequities Across Income, Poverty, and Minority Populations,"* CES Mini-Grant, Center for Environmental Studies, CSUB (Spring 2025). Acknowledged in published *Environmental Research: Health* article.