



Cumulative Biobibliography

August 14, 2025 (last update 8/4/2025)

Sagnik Nath

Assistant Teaching Professor (LPSOE)
University of California, Santa Cruz

RESEARCH INTERESTS

Engineering and Computer Science Education, Equity-Driven Curriculum Design for First-Generation and Community College Transfer Students, LLMs and SLMs for Instructional Scaffolding ,Design-Based Research in Computing Education, Data Science Pathways and Transfer Readiness for Underrepresented Students

TEACHING INTERESTS

Computer Architecture, Logic Design, VLSI Design, Machine Learning

EMPLOYMENT HISTORY

- Fall 2020 Assistant Teaching Professor (LPSOE), Computer Science and Engineering, University of California, Santa Cruz
- 2019 Worked as Graduate Research Assistant under Prof John F McDonald to investigate the automated place and route methodology for asynchronous SFQ circuit design. Worked as Graduate Teaching Assistant by assisting the administration of courses through holding office hours, proctoring of exams and preparing solutions., Renssalaer Polytechnic Institute, N

EDUCATION

- 2020 Ph.D., Received in Electrical Engineering from Renssalaer Polytechnic Institute, Troy ,NY
- 2015 B.S., Received the Bachelor of Engineering (BE) in Electronics and Communication Engineering (ECE) from the Indian Institute of Engineerign and Science Technology, Shibpur

HONORS AND AWARDS

- Spring 2025 **Outstanding Reviewer:**
Awarding Organization: ACM Innovation and Technology in Computer Science Education (ITiCSE)
Description: Honored for exemplary paper reviewing contributions to ITiCSE 2025 conference. Selected based on multiple criteria including nominations from Associate Program Chairs, active engagement during the discussion phase, and consistently thorough and thoughtful reviews, as determined by the Program Committee.
Award Type: Professional/Scholarly Service Award
- Spring 2025 **Excellence in Teaching Career (ETC) Award:** Recipient of the 2025 Excellence in Teaching Career (ETC) Award at UC Santa Cruz, in recognition of outstanding undergraduate teaching and mentoring contributions in the Baskin School of Engineering.
- Winter 2025 **Outstanding Associate Program Chair:**
Awarding Organization: ACM Special Interest Group on Computer Science Education (SIGCSE)
Description: Recognized for exceptional service as an Associate Program Chair (APC) during the paper review process for SIGCSE TS 2025. Selection was based on nominations and direct recognition by the Program Committee for consistently high-quality review contributions.
Award Type: Professional/Scholarly Service Award

Winter 2024 Outstanding Reviewer:

Awarding Organization: ACM Special Interest Group on Computer Science Education (SIGCSE)

Description: Honored for exemplary paper reviewing contributions to SIGCSE TS 2024. Selected based on multiple criteria including nominations from Associate Program Chairs, active engagement during the discussion phase, and consistently thorough and thoughtful reviews, as determined by the Program Committee.

Award Type: Professional/Scholarly Service Award

SCHOLARLY AND CREATIVE WORK**Journal Articles**

- JA1 2019 **Article:** S. Nath, K. English, A. Derrickson, A. Haslam and J. F. McDonald. "An Automatic Placement and Routing Methodology for Asynchronous SFQ Circuit Design", PhD Thesis based paper, IEEE Transactions on Applied Superconductivity, Volume: 30, Issue: 3. (Sep 18 2019) PEER REVIEWED
- JA2 2019 **Article:** D. Amparo, M. Celik, S. Nath, A. Inamdar, "Timing Characterization for RSFQ Cell Library ", IEEE Transactions on Applied Superconductivity, Volume: 29, Issue: 5. PEER REVIEWED

Papers in Conference Proceedings

- * FIE24 New 2024 **Article:** WIP: Beyond Code: Evaluating ChatGPT, Gemini, Claude, and Meta AI as AI Tutors in Computer Science and Engineering Education (Summer 2024) PEER REVIEWED
- * AS24 New 2024 **Article:** Enhancing High-Level Language Concept Comprehension through a Notional Machine Approach of Assembly Language Education (Spring - Spring 2024) PEER REVIEWED
- AS23 2023 **Article:** Developing the ITL framework and committing to inquiry as a method for reducing equity gaps in high-impact, computer science and engineering courses (Spring 2023) PEER REVIEWED
- CP1 2019 **Article:** S. Nath, K. English, A. Derrickson, J. McDonald, "An automated place and route methodology for asynchronous SFQ circuit design ", IEEE International Superconductive Electronics Conference (2019) PEER REVIEWED

PROFESSIONAL ACTIVITIES**Papers Presented at Professional Meetings**

- Spring 2025 Invited speaker at the 2025 Folsom Lake College Tech Summit (AI and the Future of Work track). Presented a talk based on the IEEE FIE 2024 Work-in-Progress paper: "Beyond Code: Evaluating ChatGPT, Gemini, Claude, and Meta AI as AI Tutors in Computer Science and Engineering Education." INVITED
- Fall 2024 **Article:** Presented peer-reviewed paper titled "Beyond Code: Evaluating ChatGPT, Gemini, Claude, and Meta AI as AI Tutors in Computer Science and Engineering Education" at the 2024 IEEE Frontiers in Education (FIE) Conference. PEER REVIEWED
- Summer 2024 **Article:** Presented peer-reviewed paper titled "Enhancing High-Level Language Concept Comprehension through a Notional Machine Approach of Assembly Language Education" at the 2024 ASEE Annual Conference, in the Pre-College Engineering Education Division. PEER REVIEWED
- Spring 2023 Presented paper on "Developing the ITL framework and committing to inquiry as a method for reducing equity gaps in high-impact, computer science and engineering courses" at the Computing and Information Technology Division (CIT) Technical Session 7 during the ASEE 2023 conference proceedings PEER REVIEWED

Memberships or Activities in Professional Associations

- Summer 2024 Moderated the technical session "**First-Year Programs Division Technical Session 9: Student Growth & Professionalization**", and the workshop "**Funding for New**

Engineering Education Researchers: Applying to the NSF RIEF Program"**Venue:** 2024 ASEE Annual Conference and Exposition PEER REVIEWED INVITED

- Summer 2023 Appointed as Secretary for ASEE's Computing and Information Technology (CIT) division, commencing from ASEE 2024. Overseeing administrative duties, meeting coordination, and communication among division members to enhance collaboration and support divisional growth. PEER REVIEWED INVITED

Review/Referee Grants, Proposals and Publications

- Spring 2025 Technical Reviewer for 2025 ACM Global Computing Education Conference PEER REVIEWED INVITED
- Winter 2025 Panel Reviewer for the National Science Foundation(NSF) on a solicitation in the Division of Undergraduate Education (DUE), contributing expertise to the evaluation and recommendation of grant proposals based on intellectual merit and broader impacts. PEER REVIEWED INVITED
- Winter 2025 Technical Reviewer for the 2025 American Society of Engineering Education ASEE Annual Conference PEER REVIEWED INVITED
- Winter 2025 Technical Reviewer for the 2025 ACM Innovation and Technology in Computer Science Education (ITiCSE) PEER REVIEWED INVITED
- Winter 2025 Technical Reviewer for IEEE SoutheastCon 2025 PEER REVIEWED INVITED
- Fall 2024 Panel Reviewer for the National Science Foundation(NSF) on a solicitation in the Division of Undergraduate Education (DUE), contributing expertise to the evaluation and recommendation of grant proposals based on intellectual merit and broader impacts. PEER REVIEWED INVITED
- Fall 2024 Technical Reviewer for the 2025 IEEE International Symposium on Circuits and Systems Conference (ISCAS) PEER REVIEWED INVITED
- Fall 2024 Technical Reviewer for IEEE Transactions on Education PEER REVIEWED INVITED
- Spring 2024 Panel Reviewer for the National Science Foundation(NSF) on 1 solicitation in the Research in the Formation of Engineers (RFE) division. PEER REVIEWED INVITED
- Spring 2024 Associate Program Chair(APC) for the 2025 Association for Computing Machinery's Special Interest Group on Computer Science Education (SIGCSE) Technical Symposium Conference, involved in coordinating with reviewers, managing the paper review process and assisting with the selection of accepted papers PEER REVIEWED INVITED
- Winter 2024 Panel Reviewer for the National Science Foundation(NSF) on 2 solicitations in the Computer and Information Science and Engineering (CISE) division and the Research in the Formation of Engineers (RFE) division. PEER REVIEWED INVITED
- Winter 2024 Technical Reviewer for the 2024 ACM Innovation and Technology in Computer Science Education (ITiCSE) PEER REVIEWED INVITED
- Fall 2023 Technical Reviewer for the 2024 IEEE SoutheastCon 2024 PEER REVIEWED INVITED
- Fall 2023 Reviewer for the 2024 IEEE International Symposium on Circuits and Systems Conference (ISCAS) PEER REVIEWED INVITED
- Fall 2023 Technical Reviewer for the 2024 American Society of Engineering Education ASEE Conference PEER REVIEWED INVITED

- Summer 2023 Technical reviewer for Special Interest Group on Computer Science Education ,SIGCSE, TS 2024 Paper - Computing Education Research PEER REVIEWED INVITED
- Spring 2023 Technical reviewer for the Third International Conference on Emerging Techniques in Computational Intelligence, ICETCI 2023 PEER REVIEWED INVITED

UNIVERSITY SERVICE

Academic Senate Service

- Fall 2024 - Spring 2025 Served as a member of the **Committee on Courses and Instruction (CCI)**. Participated in regular Senate meetings, providing input on matters related to undergraduate curriculum policy, new course proposals, and general education designations. Represented the interests of the CSE department by reviewing and approving GSI assignments, course-related student petitions, and other instructional changes requiring CCI oversight. Contributed to shared governance and upholding academic standards through active committee participation.

Service to the Department

- Jun 2024 - Present Serving as a member of the internal Diversity, Equity, and Inclusion (DEI) working group within the CSE department. Collaborated with faculty to analyze disaggregated course performance data, particularly focused on female identifying students, to identify structural challenges and recommend equity-focused interventions. Contributed to data-informed discussions aimed at improving student success outcomes and fostering an inclusive departmental culture.
- Fall 2024 - Spring 2025 Provided extensive instructional mentorship to a newly hired faculty members Profs Abel Souza and Yuanchao Xu preparing to teach CSE 120 (Computer Architecture) for the first time. Shared course materials and offered detailed pedagogical guidance to help adapt the content to their teaching style. Assisted with Canvas setup, syllabus organization, and overall course structuring. Also provided orientation support related to UCSC's administrative and logistical systems. This collegial mentorship contributed meaningfully to the faculty member's successful transition into their teaching role.
- Fall 2024 Coordinated and hosted an invited research seminar for the Hardware Systems Collective (HSC) seminar series in the CSE department. Organized the logistics and outreach to secure Soham Sinha, Research Scientist at NVIDIA, as a guest speaker. The in-person talk on November 15, 2024, contributed to fostering industry-academic engagement, enhancing student exposure to cutting-edge industry systems research and supporting faculty collaboration in the HSC community.
- Winter 2024 Participated as a faculty interviewer during multiple concurrent faculty searches in the CSE department. Filled in key interview slots for on-campus visits, engaged candidates in substantive discussions about teaching, research, and departmental culture, and provided institutional context and feedback. Contributed to recruitment and candidate evaluation across parallel search efforts during a high-volume hiring cycle.
- Fall 2023 - Winter 2024 Served as **Search Committee Chair** for two faculty recruitments in the Department of Computer Science and Engineering: one LPSOE (Assistant Teaching Professor) and one LSOE (Associate Teaching Professor) position. As Chair, led all aspects of the search process, including forming a balanced and DEI-conscious committee, coordinating outreach efforts, overseeing initial applicant screening, and organizing on-campus visits. Acted as primary host for all finalists and facilitated candidate engagement across faculty and student constituencies. Played a central role in leading committee deliberations, drafting final justifications, and securing department approval for offer letters. Successfully filled both positions, contributing to strategic faculty growth and advancing the department's commitment to excellence in teaching.
- Winter 2023 Mentored and provided support to lecturer Marcelo Siero during his instruction of CSE12. Facilitated knowledge transfer by sharing course materials, including slides, lab assignments, and syllabus, enabling the lecturer to successfully teach the course. Developed an innovative real-time grading system for CSE12, in collaboration with one of my CSE12 TAs, utilizing a Gradescope plug-in and custom Python coding. This system significantly improved efficiency and time management for both students and instructors. The solution was shared fully with the Marcelo to enhance the teaching experience in his section.

Winter 2023 Served as the sole Teaching Professor on the search committee for a new Teaching Professor (LPSOE) position. Leveraged expertise as a Teaching Professor to offer valuable context and insights into the role requirements during candidate evaluations. Utilized grounded educational research theory to assess teaching styles in interviews, ensuring a comprehensive understanding of candidates' instructional approaches. Provided candidates with detailed information during one-on-one interviews about the specific responsibilities and nuances of the Teaching Professor position.

Service to the University

- Fall 2024 - Present** Served as a faculty mentor in the UCSC Faculty Mentorship Program (FMP), organized by the Committee on Career Advising (CCA). Matched with a new faculty member Kriti Bhargava (CSE), providing guidance on navigating UCSC academic culture, expectations, and community-building opportunities.
- Spring 2025** Invited by Aims McGuinness (Campus Provost, Merrill College) and Erin Busch (Career Engagement Specialist) to deliver a workshop(May 13) on technical interviewing strategies for UCSC students exploring careers in the tech industry. Shared insights from an academic and hiring perspective and presented a slide deck on the technical interview process as well as engaging in Q&A from attending students. Supported UCSC's broader mission of student professional development by complementing college- and campus-level career readiness efforts.
- Spring 2025** Participated in a UCSC faculty delegation visit to Hartnell College as part of the Teaching & Learning Center (TLC) Fellow program. Invited by Dr. Robin Dunkin (Faculty Director, TLC), I was one of only two faculty members from the Baskin School of Engineering, and the sole CSE faculty representative, contributing to cross-institutional outreach. Engaged with Hartnell's Dean of STEM and several STEM faculty to build relationships and explore opportunities for transfer student support, curriculum alignment, and long-term collaboration. This visit was part of broader HSI initiatives like Cultivamos Excelencia and ATI Pathways to Success, aimed at improving transfer rates and academic success for community college students.
- Spring 2025** Served as a CSE faculty representative at both the morning and afternoon information sessions during **UCSC's Banana Slug Day** (Saturday, April 12). Provided real-time Q&A and guidance on curriculum, student experience, and career pathways. **Weekend service** contribution directly supported undergraduate recruitment and institutional growth.
- Fall 2024** Represented the CSE department at Baskin Engineering's Parents Weekend meet-and-greet, held on Saturday, November 2, 2024. As **weekend service**, joined Assoc. Dean of Undergraduate Affairs, Jim Whitehead to engage with families of current engineering students, answering questions about curriculum, student experience, and academic support.
- Fall 2024** Served as an **internal peer reviewer** for the excellence review and Continuing Appointment case of Lecturer Rick Graziani in the CSE department. Evaluated the candidate's teaching statement, course materials, and student evaluations in accordance with UC system-wide standards for excellence in teaching, academic responsibility, and service. Authored a confidential review letter contributing to the formal Academic Personnel process and shared governance at UCSC.
- Fall 2024** Served as an invited speaker for UCSC's EDGE-DS faculty development seminar series, led by Professor Pedro Morales-Almazán and funded by the California Learning Lab. Created and presented a custom Google Colab-based Jupyter notebook to introduce core data science concepts to instructors and graduate students with no prior data science experience. Supported the program's mission of fostering interdisciplinary comfort with data-driven pedagogy across diverse fields of study.
- Spring 2024** Represented the CSE Department as the sole CSE faculty participant at **UCSC's Día de la Familia Resource Fair** on Mar 16 (Saturday), hosted by Services for Transfer Re-Entry and Resilient Scholars (STARS) and the Community College Partnership Programs (CCCPP). One of only two Baskin faculty present, I engaged directly with over 100 prospective transfer students and family members, answering questions about computing pathways at UCSC. This **weekend service** supported institutional efforts to improve transfer readiness and access for first-generation and underserved students, particularly those from California community colleges.

- Spring 2024 Conducted a formal peer teaching evaluation of Prof. Yuanchao Xu's instruction in CSE 120 (Computer Architecture) as part of his initial personnel review at UCSC. Attended and assessed a live lecture, reviewed instructional materials, and submitted a written evaluation in accordance with UCSC Academic Personnel guidelines.
- Spring 2024 Represented UCSC as an invited contributor at the CAHSI AI Convening in Washington, D.C., funded by Microsoft. Participated in multiple panel sessions alongside leaders from NSF, Google, Microsoft, and national laboratories, sharing strategies to broaden participation in AI. Presented approaches for improving AI-assisted math learning and STEM instruction reliability.
- Winter - Spring 2024 Actively contributed as a Baskin School of Engineering faculty representative for the 2024 **Baskin Engineering Excellence Scholars (BEES)** cohort, working alongside Associate Dean of DEI Marcella Gomez and fellow CSE faculty member Niloofar Montazeri. Participated in recurring BEES team meetings and provided ongoing guidance on curriculum delivery and instructional strategies for the BEES Python programming course. Played a key role in evaluating and interviewing candidates for BEES peer mentor positions. Focused on supporting first-generation, low-income, and underrepresented students in STEM by fostering inclusive mentorship and shaping the academic experience of BEES scholars.
- Winter 2024 Completed a formal teaching effectiveness assessment for Lecturer Marcelo Siero as part of his Continuing Lecturer review process. At the department's request, reviewed course materials and teaching record to evaluate effectiveness in instruction and academic contribution. Submitted the completed assessment form as part of UCSC's official Academic Personnel review process.
- May 4 2023 Shared insights during the Transformative Engineering session at the Association of American Universities (AAU) campus visit, highlighting the Baskin School of Engineering's dedication to cultivating inclusivity and advancing impactful initiatives that enhance teaching, learning, and research.

K-12 Outreach

- Spring 2025 Participated in **UCSC Career Day for High School Students** (April 25, 2025), as the sole faculty representative from the Baskin School of Engineering. Engaged over 35 students from diverse backgrounds by answering questions about computer science, engineering pathways, and college readiness. Brought a Raspberry Pi-based robotics kit to demonstrate foundational software and hardware concepts, which sparked curiosity and interactive discussion. Contributed to UCSC's mission of early STEM engagement and outreach.

Other Outreach

- Spring 2025 Delivered an invited alumni research talk at IEST Shibpur, my undergraduate alma mater, based on my peer-reviewed IEEE FIE conference paper on AI pedagogy. The talk was recorded and published on the official YouTube channel of the IEST Global Alumni Association (GAABESU). Engaged with students and faculty across disciplines to share insights on data-driven instructional techniques involving LLMs in STEM education.
- Summer 2024 Organized and led a UCSC-hosted online outreach initiative aimed at strengthening data science and AI exposure for California community college students, particularly those from underserved backgrounds. Served as the primary faculty lead in coordinating program logistics, recruiting undergraduate mentors, and building cross-campus connections with multiple community colleges. The initiative aligned with UCSC's mission to advance inclusive excellence and improve transfer pathways through early STEM engagement.

MENTORING AND STUDENT ADVISING

Masters Students

| Dates | Relationship | Degree Year | Name and Activities |
|---------------------|--------------------|-------------|---|
| Fall 2024 - Present | Primary Supervisor | 2026 | Neil Dangat - Neil proposed an innovative thesis project that explores improving video compression by rethinking how intra (key) frames |

are stored and reconstructed. His work focuses on developing a system that utilizes Locality Sensitive Hashing (LSH) to perform global block similarity searches on high-dimensional DCT coefficients, with the goal of eliminating redundant intra-frame data across nominally unrelated videos. The proposed system would enable more efficient storage and transmission of video by dynamically assembling keyframes from a shared block database. His research demonstrates strong intellectual merit through its use of high-dimensional similarity search and practical potential for broad impact in streaming, surveillance, and content-reuse-heavy media formats. We have regular meetings to guide the design, feasibility analysis, and implementation milestones of this project.

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|--|------|---|
| Fall 2024 - Co Supervisor Winter 2025 | 2025 | Vaibhav Rumale - Served as a co supervisor and formal proofreader for Vaibhav's MS thesis while Prof. Tyler R. Sorensen was the official primary advisor. My contributions included detailed structural and editorial feedback, guidance on framing research questions, strengthening technical exposition, and ensuring clarity and coherence in the final document after which I formally signed off on the final thesis. During and immediately following Vaibhav's graduation, he continued as an unpaid research assistant under my mentorship while seeking employment and preparing for F1 visa based OPT. I supported him in maintaining active student status and advising on job application, and overall served as an academic mentor ensuring Vaibhav's progress. |
| Spring 2025 Other Advisor | 2025 | Rohan Pradhan - Served as the official project reader for Rohan's MS capstone project, with Prof. Liting Hu as the primary advisor. My mentorship focused on helping Rohan effectively present and structure his technical results for clarity and professional polish. I provided targeted feedback on how to frame the benchmarking analysis and ensure the project report met academic expectations for rigor and coherence. |
| Fall 2023 Other Advisor | 2023 | Ann Sophie Abrahamsson - Served as a formal project committee member (reader) for Ann Sophie Abrahamsson's joint MS capstone project, co-advised by Prof. Heiner Litz. Provided critical feedback on the structure, clarity, and presentation of the technical content to ensure the final report met academic expectations. |
| Fall 2023 Other Advisor | 2023 | Nitya Bhupatiraju - Served as a formal project committee member (reader) for Nitya Bhupatiraju's joint MS capstone project, co-advised by Prof. Heiner Litz. Provided critical feedback on the structure, clarity, and presentation of the technical content to ensure the final report met academic expectations. |

Undergraduate Students

| Dates | Relationship | Degree Year | Name and Activities |
|---|--------------|-------------|---|
| Spring 2025 - Primary Supervisor Present | | | Justin Chung - Serving as project manager and faculty mentor for the DMV Digital Wallet Resume initiative, a public sector collaboration with the California State Government, ORA Systems, and Cal-IPGCA. The student is actively involved in designing and prototyping a credential wallet web application that integrates secure badge issuance, metadata control, and selective sharing features. My role included guiding systems architecture decisions, aligning project deliverables with government specifications and facilitating cross-sector communication. The initiative directly supports workforce innovation and credential transparency for state employees. |
| Spring 2025 - Primary Supervisor Present | | | Jasmine Fortez - Mentoring student in foundational research methodology related to large language models (LLMs), with an emphasis on domain-specific small language models in computer architecture. Initial onboarding focuses on building theoretical understanding of transformer architectures, gaining hands-on experience with parameter-efficient fine-tuning methods such as LoRA using Google Colab, and developing skills in reading and |

Spring 2025 - Primary Supervisor
Present

interpreting academic papers. The long-term objective is to support the student in producing a peer-reviewed conference publication by the time of graduation.

Ruthwika Gajjala - Mentoring student on an embodied AI project that integrates rule-based logic with LLM-generated instructions to guide real-world robot behavior. Using the PiCar-X robot, the student is being mentored to develop a system where sensor inputs (e.g., camera and sonar) are interpreted via GPT-based API calls to generate goal-directed action plans, which are then mapped to predefined control routines (e.g., locating and reaching a red ball). Future work involves transitioning to local LLMs for onboard inference. The goal is for the student to co-author a peer-reviewed conference paper by the time of graduation.

Spring 2025 - Primary Supervisor
Present

Nicholas Mo - Serving as project manager and faculty mentor for the DMV Digital Wallet Resume initiative, a public sector collaboration with the California State Government, ORA Systems, and Cal-IPGCA. The student is actively involved in designing and prototyping a credential wallet web application that integrates secure badge issuance, metadata control, and selective sharing features. My role included guiding systems architecture decisions, aligning project deliverables with government specifications and facilitating cross-sector communication. The initiative directly supports workforce innovation and credential transparency for state employees.

Spring 2025 - Primary Supervisor
Present

Arushi Tyagi - Mentoring student in foundational research methodology related to large language models (LLMs), with an emphasis on domain-specific small language models in computer architecture. Initial onboarding focuses on building theoretical understanding of transformer architectures, gaining hands-on experience with parameter-efficient fine-tuning methods such as LoRA using Google Colab, and developing skills in reading and interpreting academic papers. The long-term objective is to support the student in producing a peer-reviewed conference publication by the time of graduation.

Spring 2025 - Primary Supervisor
Present

Rachit Verma - Mentoring student on an embodied AI project that integrates rule-based logic with LLM-generated instructions to guide real-world robot behavior. Using the PiCar-X robot, the student is being mentored to develop a system where sensor inputs (e.g., camera and sonar) are interpreted via GPT-based API calls to generate goal-directed action plans, which are then mapped to predefined control routines (e.g., locating and reaching a red ball). Future work involves transitioning to local LLMs for onboard inference. The goal is for the student to co-author a peer-reviewed conference paper by the time of graduation.

Spring 2025 Primary Supervisor

Sakshi Konnur - Mentored student through an initial research onboarding process in LLM research, including a guided deep dive into the foundational paper "Attention Is All You Need" (2017). The student presented and received feedback on her understanding of baseline theory of transformers with the goal of building research literacy. This experience helped prepare the student for future graduate-level exploration and enrolling into 4+1 MS CSE program at UCSC.

Winter 2025 Primary Supervisor

Teddy Danielson - Mentored student on engaging with computer architecture research and simulation tools. Instructed the student to read and re-present a published paper on benchmarking with gem5, with feedback focused on research absorption and articulation. Also provided technical support in installing and running gem5 locally for hands-on experience with architecture simulation.

Winter 2025 Primary Supervisor

Ryan Dong - Mentored student in research literacy and simulation-based benchmarking in computer architecture. Provided a reference paper on gem5 for the student to analyze and re-present. Gave feedback on comprehension and research communication. Assisted

Winter 2025 Primary Supervisor

with gem5 setup and benchmarking tasks to build familiarity with architectural simulation tools.

Samuel Morrow - Mentored student on developing foundational research skills in computer architecture. Guided the student through reading and critically analyzing a benchmarking paper on the gem5 functional simulator. The student was asked to present the paper as if they were the author, receiving feedback on both technical comprehension and communication. Also supported local installation and execution of gem5, introducing key architectural benchmarking workflows.

Fall 2024 Primary Supervisor

Roy Chan - Supervised Roy Chan's independent field study (CSE 193) as part of his CPT-authorized internship at NextLabs. Reviewed and approved learning objectives, scope of work, and final report. Roy's work included C++ development, system-level debugging, REST API integration, and performance optimization for enterprise software systems. His final report demonstrated technical depth and alignment with CSE learning outcomes.

Summer 2024 Primary Supervisor

Gladys Garcia - Mentored student in a leadership and instructional support role during a 10-day online Data Science summer program for pre-transfer community college students. Provided guidance on best practices for peer mentorship, including managing breakout sessions, leading small-group discussions, and building rapport with students from diverse backgrounds. Assigned a cohort of community college students for whom she served as the primary peer mentor, helping her develop facilitation, communication, and team leadership skills.

Summer 2024 Primary Supervisor

Manuel Hidalgo Sola - Mentored undergraduate student in developing peer leadership skills during a 10-day online Data Science summer program targeted at pre-transfer community college students. Trained the student in cohort management, breakout room facilitation, and inclusive mentoring techniques. Manuel served as a peer mentor to a cohort of students, providing support with assignments and classroom discussions while honing his own abilities in teaching, leadership, and student engagement.

TEACHING

2024-2025

Courses Taught

| Quarter | Name | Units | 3rd Week Enrollment | % Eval Retd | % Taught | Comments |
|---------|-----------------------------------|-------|---------------------|-------------|----------|----------|
| Summer | CSE 198 - 02 - Indiv Study Or Res | 5 | 1 | | 100 | |
| Fall | CSE 012 - 01 - Com Sys/Assmby Lan | 7 | 171 | 89 | 100 | |
| Fall | CSE 120 - 02 - Computer Architect | 5 | 247 | 90 | 100 | |
| Fall | CSE 297A - 54 - Individual Study | 5 | 1 | | 100 | |
| Winter | CSE 012 - 01 - Com Sys/Assmby Lan | 7 | 241 | 89 | 100 | |
| Winter | CSE 297A - 54 - Individual Study | 5 | 1 | | 100 | |
| Spring | CSE 012 - 01 - Com Sys/Assmby Lan | 7 | 236 | 80 | 100 | |
| Spring | CSE 120 - 01 - Computer Architect | 5 | 202 | 90 | 100 | |
| Spring | CSE 299A - 54 - Thesis Research | 5 | 1 | | 100 | |

Other Teaching

24-25 Summer Led a fully online 10-day data science and AI education program for California community college students as part of a UCSC initiative to broaden participation in computing. Designed and delivered scaffolded instructional materials covering statistics, probability, regression, and introductory machine learning, tailored for students with little to no prior coding or advanced math experience. Recruited and managed undergraduate peer mentors to support breakout rooms, office hours, and formative feedback. Pre/post survey analysis showed statistically

significant gains in student self-efficacy and reductions in math anxiety. The program received campus-wide recognition for advancing inclusive excellence in STEM pathways.

24-25 Fall Delivered an invited teaching session for the edge-DS seminar series at UCSC, a California Learning Lab-funded initiative led by Professor Pedro Morales-Almazán. Designed and taught an introductory hands-on module using a custom Google Colab Jupyter notebook. The notebook guided instructors and graduate students through foundational data science concepts, including data cleaning, exploratory statistics, visualization, and fairness diagnostics without requiring prior technical expertise. Supported the program's goal of equipping non-CS faculty with skills to integrate data science into their own teaching contexts.

2023-2024

Courses Taught

| Quarter | Name | Units | 3rd Week Enrollment | % Eval Retd | % Taught | Comments |
|---------|------------------------------------|-------|---------------------|-------------|----------|----------|
| Fall | CSE 012 - 01 - Com Sys/Assmbly Lan | 7 | 227 | 39 | 100 | |
| Fall | CSE 120 - 02 - Computer Architect | 5 | 153 | 51 | 100 | |
| Winter | CSE 120 - 02 - Computer Architect | 5 | 188 | 63 | 100 | |
| Winter | CSE 122 - 01 - Intro to VLSI | 5 | 44 | 33 | 100 | |
| Winter | CSE 222A - 01 - Advanced VLSI | 5 | 7 | 71 | 100 | |
| Spring | CSE 012 - 01 - Com Sys/Assmbly Lan | 7 | 264 | 42 | 100 | |
| Spring | CSE 120 - 02 - Computer Architect | 5 | 247 | 42 | 100 | |

Other Teaching

23-24 Participated in the DEI faculty workshop that held on January 24th, 2023. Engaged in discussions to address the recruitment, retention, and assessment components of DEI programming.

2022-2023

Courses Taught

| Quarter | Name | Units | 3rd Week Enrollment | % Eval Retd | % Taught | Comments |
|---------|------------------------------------|-------|---------------------|-------------|----------|----------|
| Fall | CSE 012 - 01 - Com Sys/Assmbly Lan | 7 | 343 | 43 | 100 | |
| Fall | CSE 120 - 02 - Computer Architect | 5 | 152 | 44 | 100 | |
| Winter | CSE 012 - 01 - Com Sys/Assmbly Lan | 7 | 229 | 51 | 100 | |
| Winter | CSE 120 - 01 - Computer Architect | 5 | 246 | 34 | 100 | |
| Spring | CSE 012 - 01 - Com Sys/Assmbly Lan | 7 | 259 | 33 | 100 | |
| Spring | CSE 120 - 01 - Computer Architect | 5 | 176 | 44 | 100 | |

2021-2022

Courses Taught

| Quarter | Name | Units | 3rd Week Enrollment | % Eval Retd | % Taught | Comments |
|---------|------------------------------------|-------|---------------------|-------------|----------|----------|
| Fall | CSE 012 - 01 - Com Sys/Assmbly Lan | 7 | 347 | 48 | 100 | |
| Fall | CSE 120 - 02 - Computer Architect | 5 | 148 | 27 | 100 | |
| Winter | CSE 100 - 01 - Logic Design | 5 | 76 | 31 | 100 | |
| Winter | CSE 100L - 01 - Logic Design Lab | 2 | 76 | | 100 | |
| Winter | CSE 120 - 01 - Computer Architect | 5 | 239 | 34 | 100 | |
| Spring | CSE 012 - 01 - Com Sys/Assmbly Lan | 7 | 463 | 43 | 100 | |
| Spring | CSE 120 - 01 - Computer Architect | 5 | 182 | 29 | 100 | |

Other Teaching

21-22 Summer Engaged in the transformative REAL (Redesigning for Equity & Advancing Learning) project, led by the Teaching and Learning Center at UCSC. Collaboratively redesigned a crucial undergraduate course (CSE12) with a focus on addressing barriers to student persistence within the major. Incorporated student pathways, equity considerations, and aligned learning outcomes, assessments, and teaching activities, contributing to the cultivation of inclusive learning environments and bridging equity gaps. Successfully prepared key elements of the course for implementation in the classroom.

2020-2021**Courses Taught**

| Quarter | Name | Units | 3rd Week Enrollment | % Eval Retd | % Taught | Comments |
|---------|-----------------------------------|-------|---------------------|-------------|----------|----------|
| Fall | CSE-120-01 Computer Architect | 5 | 228 | 43 | 100 | |
| Winter | CSE-12-01-Com Sys Assmby Lan | 5 | 422 | 41 | 100 | |
| Winter | CSE-122-01-Intro to VLSI | 5 | 21 | 33 | 100 | |
| Winter | CSE-222A-01-Advanced VLSI | 5 | 6 | 17 | 100 | |
| Spring | CSE 012 - 01 - Com Sys/Assmby Lan | 5 | 453 | 51 | 100 | |
| Spring | CSE 012L - 01 - Comp Sys/Lang Lab | 2 | 453 | 38 | 100 | |
| Spring | CSE 100 - 01 - Logic Design | 5 | 84 | 32 | 100 | |
| Spring | CSE 100L - 01 - Logic Design Lab | 2 | 84 | 22 | 100 | |