

I am pursuing a Master's in Computer Science emphasizing human-computer interaction, with career aspirations to pragmatically combine CS, human-centered design, and diversity work through industry research and development. My research interests include software engineering, learning tools, and equitable/intelligent user interface development. Breaking down cognitive barriers inhibiting productivity and access to technology motivates me to examine these topics through racially, culturally, and socioeconomically sensitive lenses.

One of Stanford's strengths is its potential to inform software engineering industry practices and innovate software productivity. As such, I believe the school will fulfill my research interests, particularly with the opportunities in the Human-Computer Interaction track and the d.school. The faculty member I would most like to work with is James Landay; their research areas in learning tools and socially-conscious interfaces align with my interests in understanding cultural barriers to software interactions and developing software for social good. I am especially struck by the Smart Primer and Quizbot projects, as they demonstrate how software can bridge cognitive gaps and facilitate learning. However, I am open to other research areas. With my passion for diversity, interdisciplinary research background, and professional experience, I believe I will be a strong asset to Stanford's CS department.

At Harvey Mudd, I was a research assistant for Zachary Dodds's NSF-funded "Middle-Years CS" lab group. We developed a CS curriculum appropriate for elementary and middle school students, supplemented with educator tools using [Scratch](#) and Arduino. Our group conducted professional development workshops for underprivileged teachers and students in California and Hawaii, presented at the [SIGSCE](#) conference, and [published a paper](#) on our findings. Our analysis concluded that teachers and students who engaged with the curriculum significantly raised their confidence, awareness, and comfortability levels in CS topics. Currently, San Francisco Unified School District and other regional districts adapt our courses into their own curriculum. In developing the course materials, it was important for me to consider the audience of my work: students who may not have all the foundations and resources in math and logic for a "traditional" CS curriculum, and teachers who may have not had a specific background in CS or even STEM. My research with underrepresented schools taught me how socioeconomic and cognitive factors affect technical learning ability. At Stanford, I hope to explore new instructional methods to better support these diverse communities.

I also extrapolated my human-centered praxis to industry settings when considering equitable user interface designs. For my senior capstone project, I helped develop a full-stack web application for GoDaddy's website building tool. Target users were mostly small business owners characterized by a lack of time, design ability, and programming experience. As such, on top of implementing the front-end and UX prototyping, I spearheaded several types of user testing sessions to externally validate our work. In one session, we conducted A/B testing on several input methods to survey ease of use and cognitive load. For quantitative measures, participants scored the application based on Nielsen's Heuristics and the Single Ease Question; for qualitative measures we facilitated group interviews and recorded screen interactions and facial expressions. Our project won the CS department's "Outstanding Clinic Team" award. Designing and conducting these user tests gave me valuable insight into human-centered analysis and how individuals interact with user interfaces, thinking critically of demographics such as age and education. I continue to use these experiences as a lens to evaluate the inclusivity of practices and make informed decisions.

In two years as a Software Engineer III, I boosted developer productivity, reduced the friction of new hire onboarding, and homogenized our cross-platform mobile framework, all in regards to UI development. Within my first couple months as a new hire, I created prototypes and implementations for our uneven app UI, making it adhere to consistent Android and iOS platform standards. To bolster institutional memory and designer-to-developer handoff, I wrote and standardized our first UI development documentation and created robust style guidelines. I also led refactoring initiatives for our UI layer to ensure the codebase was more maintainable. Most recently, I implemented three fully compilable and runnable training tools for each of our mobile UI platforms, enabling new developers to experiment without a complex development environment. Relevant to my technical ability and communication skills, I have also balanced leading my team's heaviest UI projects and technical debt items with mentoring other developers and providing consultation to major stakeholders. I fostered a user-first work culture but also improved the quality of life for UI prototyping and development by empathizing with both users and developers alike.

I continue to make technology accessible through my volunteer work today. I mentor underprivileged Filipinx youth as part of the Lakas Mentorship Program, a non-profit. Currently I am reimplementing the nonprofit's website, which drives me to think critically of how an interface should be culturally and linguistically sensitive for both adolescents and adults. Specifically, I am formulating how best to present a website that considers Filipinx parents, who may not know English or have much familiarity with technology, and their children, who may not understand the cultural relevance of such an affinity group.

As a tech lead and advisor for Circle K, an international non-profit service organization, I architect and oversee major software and data science projects maintained by college students. These projects facilitate communicating service event information, optimizing event logging/tracking, and visualizing member data trends. We release these projects through mobile apps, web apps, and heat maps as tools for the nonprofit, and I work alongside the students through the software development cycle. On top of mentoring these students, I designed and implemented custom processes that boosted developer productivity and code quality, such as continuous integration and development (CI/CD) pipelines and refactoring initiatives, by understanding the educational barriers faced by these student developers.

I wish to understand how diverse populations approach and benefit from software interactions and programming. I hope to leverage my research experience, industry perspective, and intersectional mindset at Stanford so that I can continue exploring how software engineering, learning platforms, and user interfaces can be made more inclusive.