

PhD Candidate
U.S. National Science Foundation GRFP Fellow
Department of Computer Science
Northwestern University
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Research Interests

I specialize in using Human-Computer Interaction (HCI) methodologies to design and evaluate human-centered Artificial Intelligence(AI)/Machine Learning(ML). My interdisciplinary doctoral research focuses on developing and applying participatory design methods to co-design ML across different healthcare contexts, emphasizing the perspective of the end user.

Research interests/experience: HCI; machine learning + design; UX; digital interventions; behavioral science, participatory design methods

Education

- 09/2021 - **Northwestern University**, Evanston, IL
Present Doctor of Philosophy (PhD), Computer Science, McCormick School of Engineering; GPA: 3.9/4.0
Advisor: Maia L. Jacobs, PhD
Research track: Human-Computer Interaction (HCI)
- 09/2021 - **Northwestern University**, Evanston, IL
06/2023 Master of Science (MS), Computer Science, McCormick School of Engineering; GPA: 3.9/4.0
- 08/2018 - **Northeastern Illinois University**, Chicago, IL
05/2021 Bachelor of Science (BS), Computer Science, College of Business and Technology; GPA: 3.8/4.0
- 2017 **Harold Washington College**, Chicago, IL
Associate in Arts (AA), General Studies; GPA: 3.8/4.0

Honors and Awards

- 2023 - 2027 National Science Foundation (NSF) Graduate Research Fellowship (GRFP)
- 2022 Segal Design Research Cluster Fellowship
- 2022 Northwestern University Social Justice Mini Grant
- 2021 Northeastern Illinois University (NEIU) Computer Science Scholarship
- 2020 Abraham Lincoln Civic Engagement Award from the State of Illinois
- 2020 - ∞ NEIU Ronald E. McNair Scholar
- 2018 – 2020 The National TheDream.US Scholarship
- 2017 Phi Theta Kappa Honor Society

Publications

- Peer-Reviewed Publications Cruz, S., Lu, C., **Ulloa M.**, Redding, A., Hester, J., Jacobs, M. "Perceptions of Wearable Health Tools Post-COVID 19 in Low-income Latine Communities" *JMIR mHealth and uHealth (JMU)*. USA, January 26, 2024.
- Ulloa, M.**, Rothrock, B., Ahmad F., Jacobs, M. "Invisible Clinical Labor Driving the Successful Integration of AI in Healthcare." *Frontiers in Computer Science*. USA, December 1, 2022.
- Workshop papers **Ulloa, M.**, Fernandes, G., Kamali, N., Soyemi E., Beltzer M., Kaveladze, B., Alshurafa, N.; Jacobs, M., "Co-Designing Patient-Facing Machine Learning for Prenatal Stress Reduction" *2024 CSCW: the 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing - Supporting User Engagement in Testing, Auditing, and Contesting AI*. Minneapolis, MN, October 14 - 18, 2024.
- Invited talks **Ulloa, M.**, Fernandes, G., Kamali, N., Soyemi E., Beltzer M., Kaveladze, B., Alshurafa, N.; Jacobs, M., "Co-Designing Patient-Facing Machine Learning for Prenatal Stress Reduction" *2024 CRA WP IDEALS*. Minneapolis, MN, April 13, 2024.
- Research Posters **Ulloa, M.**, Cherukuru, N., "User Experience (UX) of Advanced 3D Data Visualization Software" *U.S. National Science Foundation (NSF) National Center for Atmospheric Research (NCAR)*. Boulder, Colorado, USA August 7, 2024.
- Ulloa, M.**, Kamali N., Fernandes G., Soyemi e., Beltzer M., Kaveladze B., Alshurafa N., Jacobs, M., "Co-Designing Patient-Facing Machine Learning for Prenatal Stress Reduction" *The International Society for Research on Internet Interventions (ISRIL)*. Limerick, Ireland, June 2 - 5, 2024.
- Ulloa, M.**, and Jacobs, M., "Embedding Mental Health Support into Community CS Programs" *2023 CRA WP Grad Cohort Workshop for Women*. San Francisco, California, USA, April 22, 2023.
- Ulloa, M.**, and Jacobs, M., "Embedding Mental Health Support into Community CS Programs" *2022 Lambert Conference on the Future of Human-Computer Interaction + Design*. Evanston, Illinois, USA, October 24, 2022.
- Ulloa, M.**, Clark, S., Hatheway B., Weber J., Foust E., Wasson S., Ho Y., "Developing a Real-Time Weather Museum Touchscreen" *The National Center for Atmospheric Research: SIParCS and NCAR-Wyoming Presentations*. Boulder, Colorado, USA July 29, 2020.
- Ulloa, M.**, Clark, S., Hatheway B., Weber J., Foust E., Wasson S., Ho Y., "Developing a Real-Time Weather Museum Touchscreen" *The National Center for Atmospheric Research Poster Presentations*. Boulder, Colorado, USA, July 30, 2020.
- Ulloa, M.**, Clark, S., Hatheway B., Weber J., Foust E., Wasson S., Ho Y., "Developing a Real-Time Weather Museum Touchscreen" *UCLA National McNair Conference*. Los Angeles, California, USA, July 29-31, 2020.
- Ulloa, M.**, Garcia J., Salem M., Gomez C., Adler R. F., Iacobelli F., Trana R. "Creating a Large Cyberbullying Dataset from Multiple Sources to Improve the Accuracy of Cyberbullying Classifications" *2019 SACNAS The National Diversity in STEM Conference*. Honolulu, Hawaii, USA October 30 - November 3, 2019.
- Garcia J., **Ulloa, M.**, Salem M., Gomez C., Adler R. F., Iacobelli F., Trana R. "Cyberbullying classification: Semantic Analysis of Text in Shared Image Memes" *2019 SACNAS The National Diversity in STEM Conference*. Honolulu, Hawaii, USA October 30 - November 3, 2019.

Garcia J., Salem M., **Ulloa, M.**, Gomez C., Adler R. F., Iacobelli F., Trana R. "Creating a Large Cyberbullying Classification: Analysis of Text in Social Media Memes" *11th Annual SCSE Student Research Symposium*. Chicago, Illinois, USA, September 27, 2019.

Related Work Experience

09/2021 - **Graduate Human-Computer Interaction (HCI) Researcher**

Present *Northwestern University (NU)*, Evanston, IL

- Developing expertise in HCI research methods and frameworks (e.g., A/B testing, interviews, usability studies, surveys, thematic analysis, affinity diagrams, storyboards)
- Collaborating with principal investigators, other research assistants, clinicians, health behavior scientists, and machine learning scientists
- Defining research plans, collecting reliable data, as well as analyzing and distilling its insights with experts and lay audiences
- Identifying user needs, perspectives, goals, expectations, obstacles, and motivations
- Conducting multilingual (i.e., English, Spanish) research
- Authoring research proposals, grant applications, manuscripts, workshop papers, research posters, and protocols with research team
- Actively improving research skills via symposiums, research talks, literature reviews, writing workshops, courses, and seminars
- Contributing to research discussions in lab meetings with principal investigator, other graduate researchers, and visitors

05/2024 - **Graduate User Experience (UX) Researcher**

08/2024 *U.S. National Science Foundation National Center for Atmospheric Research (NSF NCAR)*, Boulder, CO

- Conducting exploratory-primary research (such as interviews) and secondary research (such as literature reviews)
- Applying UX methodologies (i.e., Jobs-to-be-done, JTBD theory) to understand end user needs, preferences, and pain points with advanced data visualization software tools
- Effectively engaging with stakeholders, ensuring a deep understanding of their needs, concerns, and feedback in the context of UX research
- Performing user interviews, data transcription and analysis to deliver insights and recommendations to the team and organization
- Demonstrating strong verbal and written communication skills, including empathetic listening
- Applying analytical skills to interpret research data, identify trends, and draw actionable conclusions
- Actively contributing to weekly professional development workshops on topics such as science communication, leadership training, proposal writing, and data management and visualization
- Synthesizing research findings and delivering oral and poster presentations to the NSF NCAR community

03/2021 - **Instructor and research collaborator**

Present *We All Code* (WAC), Chicago, IL

- Teaching six-hour workshops on programming fundamentals to youth (ages 7 - 18) in person or virtually
- Attending meetings with the organization's founder to develop student engagement strategies and improving learning experiences of the students
- Design recruitment materials, newsletters, write grants and communications
- Arrange classroom for effective learning, welcome students and their families, and manage team of mentors
- Maintain class equipment (e.g., robots and laptops)
- Distill leanings from team retro to improve future courses

08/2019 - **Computer Science Peer Leader**

05/2021 *Northeastern Illinois University* (NEIU), Chicago, IL

- Lead weekly virtual and in-person workshops on programming I and II concepts for first-year undergraduate students
- Collaborated with other peer leaders and faculty in optimizing programming workshops
- Guided students to campus resources and external opportunities
- Participated in combined virtual and in-person Peer Leader training
- Demonstrated strong communication, leadership, and organizational skills

05/2020 - **Software Engineer Intern**

08/2020 *U.S. National Science Foundation National Center for Atmospheric Research* (NSF NCAR), Boulder, CO

- Designed and developed a new touchscreen interface that displays real-time weather data to deliver a user- friendly and educational kiosk application to be installed at NCAR's Mesa Lab and NCAR Wyoming Supercomputing Center
- Lead virtual user interviews and communicate with stakeholders with the goal of gathering application requirements
- Took an active role in team meetings, engaging with all parties and transcribing detailed notes of plans, decisions and options discussed
- Participated in ten weekly science communication workshops while engaging in group and team building discussions
- Gave a poster and oral presentation to the NCAR and National Oceanic and Atmospheric Administration (NOAA) scientific community

08/2019 - **Computer Science Society President**

05/2021 *Northeastern Illinois University* (NEIU), Chicago, IL

- Attended meetings with faculty advisor and other officers on implementation of student-led biweekly workshops
- Led team responsible for maintaining the society's website
- Designed informative recruitment materials for workshops
- Coordinated workshops provided by a team of officers on tools such as GitHub and JavaScript fundamentals

05/2019 - **Undergraduate Research Assistant**

11/2019 *Northeastern Illinois University (NEIU)*, Chicago, IL

- Applied text classification algorithms that identified text as harmful or non-harmful with 87% accuracy with the goal of improving the accuracy of cyberbullying algorithmic classifications
- Independently learned Python and writing python scripts to retrieve and classify new socially relevant text images from existing datasets
- Engaged in weekly career development workshops
- Researched various subjects that were related to the project and presented information to mentors and team
- Presented findings at SACNAS National Conference and NEIU's Student Center for Science Engagement Symposium

Related Skills

Methodologies	User interviews, Qualitative analysis, Thematic analysis, Co-design, Prototyping, Design sessions, Storyboards, Usability testing, Jobs-to-be-done, Heuristic evaluation, Affinity diagramming
Programming	Java, Python, HTML, CSS, SQL
UX Tools	NinjaMock, Figma, Miro
Version Control	GitHub
Languages	English, Spanish

Service

Conference Service	Reviewer — ACM CHI: Conference on Human Factors in Computing Systems 2024 Reviewer — ACM TOCHI: Transactions on Computer-Human Interaction 2024 Reviewer — ACM CHI: Conference on Human Factors in Computing Systems 2023 JEDI (Justice, Equity, Diversity, & Inclusion) Ambassador — UbiComp/ISWC 2023 Volunteer — ACM IDC: Interaction Design and Children 2023
University Service	NU The Graduate School Office of Diversity and Inclusion (ODI) Diversity Peer Mentor NU CS Diversity, Equity and Inclusion Minute — Presenter NU Future of Health and Computing Collective (FHCC) — Student Committee NU CS Graduate Women in Computing (GWIC) — Board Member NU CS PhD Student Visit Day — Planning Committee NU SROP Pathways to the Professoriate & Navigating Graduate School — Panelist NU CS PhD Student Visit Day — Planning Committee NU Computer Science Social Initiative (CSSI) — Board Member NEIU Alumni Panel — Panelist NEIU SCSE, TRIO, and McNair Graduate School Panel — Panelist
Community Service	We All Code Pancreatic Cancer Action Network Chicago Canine Rescue Cornerstone Autism Services Friendship Center NEIU Food Pantry Leukemia & Lymphoma Society Lurie Children's Hospital

Press

- 2024 **PhD Student Spotlight: Mara Ulloa**
- 2024 **The AI Will See You Now**
- 2023 **Patient-Focused AI System Seeks to Reduce Stress during Pregnancy**
- 2023 **Building Mentoring Relationships and Peer Networks at CRA-WP Grad Cohort for Women**
- 2022 **Supporting Mental and Emotional Health Within Computer Science Education**
- 2022 **Mara Ulloa Awarded NSF Graduate Research Fellowship**
- 2020 **CS major Mara Ulloa named Lincoln Academy Student Laureate**

Affiliations

Center for Advancing Safety of Machine Intelligence (CASMI)
Computer Science Society
McNair Scholars Program
Phi Theta Kappa Honor Society
Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS)
The Lincoln Academy of Illinois

Student Mentoring

Niharika G. Menon, MS Computer Science (Northwestern University, class of 2024)
Elizabeth Soyemi, BA Public Health (Brown University, Class of 2026)