

PhD Student

Department of Computer Science

Northwestern University

2233 Tech Dr (Office 3536), Evanston, IL USA 60208

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Research Interests

My research focuses on employing methods from human-computer interaction (HCI), machine learning, and medicine to design AI interfaces that are usable in real-world settings. The objective of my work is to build tools that are co-designed with end-users, like clinicians, to support their unique needs, such as embedding AI-clinical tools into their existing workflows. In this way I hope to leverage the power of technology to augment human-AI interaction in an ethical way.

Education

- Expected 2026 **Northwestern University**, Evanston, IL
PhD, Human Computer Interaction, McCormick School of Engineering; GPA: 3.9/4.0
Advisor: Dr. Maia L. Jacobs
- 2021 **Northeastern Illinois University**, Chicago, IL
Bachelor of Science, Computer Science, College of Business and Technology; GPA: 3.85/4.0
- 2017 **City Colleges of Chicago**, Chicago, IL
Associate in Arts, General Studies; GPA: 3.87/4.0

Honors and Awards

- 2022 Segal Design Research Cluster Fellowship
- 2022 Northwestern Social Justice Mini Grant
- 2021 Northeastern Illinois University Computer Science Scholarship Fund
- 2020 Abraham Lincoln Civic Engagement Award
- 2018 – 2020 The National TheDream.US Scholarship

Funding

Understanding the connection between youths' mental health needs and educational challenges during the pandemic. *Northwestern's Office of Diversity and Inclusion Social Justice Mini Grant*, 2021-2022 (\$2,500).

Publications

- Peer-Reviewed Journal Articles **Ulloa, M.**, Rothrock, B., Ahmad F., Jacobs, M. "Invisible Clinical Labor Driving the Successful Integration of AI in Healthcare." *Frontiers in Computer Science*.
- Research Posters **Ulloa, M.** & Jacobs, M., "Increasing STEM Diversity by Embedding Mental Health Support into Community CS Programs " *2022 Lambert Conference on the Future of Human Computer Interaction + Design*. Evanston, IL, October 24, 2022.

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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, CO 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, CO 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, CA 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, HI 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, HI 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, September 27, 2019.

Research projects

03/2022 - **Designing mental health tools for CS community education programs**

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

- Leading longitudinal participatory design studies with students from We All Code (WAC), a non-profit organization offering free programming resources to youth with diverse backgrounds
- Identifying the social support and mental health needs of students during the COVID-19 pandemic
- Designing Community-Based Participatory Research interventions with participation from students
- Attend meetings with WAC's founder to develop student engagement strategies
- Mentoring students (ages 7 – 18) learning to code in Saturday workshops hosted virtually and in person

01/2021 - **Iterative design of clinician-facing machine learning tools**

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

- Assessing user experience following a machine learning pilot in Northwestern Medicine's Electronic Health Record
- Leading qualitative semi-structured interviews with end-users (clinicians and members of the technical team) involved in the development of AI tool used to identify patients with advanced heart failure
- Independently coding themes from audio-recordings and discussing with research team
- Performing contextual inquiry study to understand the workflow and output of the machine learning model further
- The overarching goal of this work is to inform the integration of AI-powered tools into medical settings, with a focus on how to overcome sociotechnical challenges

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05/2019 - **Improving the accuracy of cyberbullying algorithmic classifications**

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

- Applied text classification algorithms that identified text as harmful or non-harmful with 87% accuracy
- Used Python scripts to retrieve and classify new socially relevant text memes 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 Work Experience

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

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

- Lead weekly virtual workshops on programming I and II concepts for other undergraduate students
- Collaborate with other peer leaders and faculty in optimizing programming workshops
- Served as a role model and 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 - **SIPARCS Intern**

08/2020 *The National Center for Atmospheric Research (NCAR), Boulder, CO*

- 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

Technical Skills

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Languages Java, Python, HTML, CSS, SQL, JavaScript
UX Tools NinjaMock, Figma
Version Control GitHub

Service

University Future of Health and Computing Collective (FHCC) — Member
Service Graduate Women in Computing (GWiC) — Leader
NU SROP Pathways to the Professoriate - Experience Navigating Graduate School —
Panelist
CS PhD Student Visit Day — Planning Committee
Computer Science Social Initiative (CSSI)
Community We All Code
Service Pancreatic Cancer Action Network
Chicago Canine Rescue
Cornerstone Autism Services
Friendship Center
Northeastern Illinois University Food Pantry
Leukemia & Lymphoma Society
Lurie Children's Hospital

Press

2020 CS major Mara Ulloa named Lincoln Academy Student Laureate,
<https://www.neiu.edu/news/computer-science-major-obsmara-ulloa-named-lincoln-academy-student-laureate>
2020 SIParCS - Mara Ulloa
<https://www2.cisl.ucar.edu/siparcs-2020-ulloa>
2021 The Peer-Led Team Learning International Society (Pages 9 –11)
<https://pltlis.org/wp-content/uploads/2021/04/The-Peer-Leader-9.pdf>

Affiliations

Computer Science Society
McNair Scholars Program
Phi Theta Kappa Honor Society
Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)
The Lincoln Academy of Illinois

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