

PhD Student

Department of Computer Science

Northwestern University

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Research Interests

My research focuses on designing novel strategies and interventions that support youth's mental health within computer science education environments. The objective of my work is to build digital mental health interventions that are co-designed with youth and address their unique support needs. I also aim to provide CS educators with tools to better support the wellbeing of students, with a particular focus on supporting underrepresented students.

Education

- Expected 2026 **Northwestern University**, Evanston, IL
PhD, Computer Science, McCormick School of Engineering; GPA: 3.9/4.0
Advisor: Dr. Maia L. Jacobs
- 2023 **Northwestern University**, Evanston, IL
MS, Computer Science, McCormick School of Engineering; GPA: 3.9/4.0
- 2021 **Northeastern Illinois University**, Chicago, IL
Bachelor of Science, Computer Science, College of Business and Technology; GPA: 3.85/4.0
- 2017 **Harold Washington College**, 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
- 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.
- 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, IL September 27, 2019.

Research projects

01/2022 - **Co-designing patient-facing machine learning for prenatal stress reduction**
Present *Northwestern University (NU)*, Evanston, IL

- Examine ways pregnant people want to interact with next-day machine learning stress predictions, explanations, and recommendations
- Lead multiple participatory design sessions with at least 20 participants
- Develop innovative co-design activities to take place virtually with participants
- Design a prototype of the patient-facing DST that visualizes distinct layers of machine learning, such as predictions, explanations, bias, uncertainty and risk and (when appropriate) recommendations to use a stress management exercise
- Conduct usability testing to assess the functionality of the application

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12/2022 - **Technology-enabled prevention service for at-risk youth**

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

Principal investigator: Ashley Knapp, PhD

- Iteratively design and evaluate a technology-enabled prevention service for anxiety with youth and community partners
- Perform literature review on elements to incorporate in digital mental health tools in order to support wellness of adolescents
- Collect and analyze interview data with adolescent patrons of local public library
- Collaborate with research team across distinct domains on design of the mental health application being developed

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
- Designing Community-Based Participatory Research interventions with participation from students (ages 12 - 18)
- 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

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

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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

Related Skills

Programming Java, Python, HTML, CSS, SQL

UX Tools NinjaMock, Figma

Version Control GitHub

Languages English, Spanish

Service

University Future of Health and Computing Collective (FHCC) — Student Committee

Service Graduate Women in Computing (GWIC) — Board Member

NU SROP Pathways to the Professoriate - Navigating Graduate School — Panelist

CS PhD Student Visit Day — Planning Committee

Computer Science Social Initiative (CSSI) - Board Member

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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 & Native Americans in Science (SACNAS)
The Lincoln Academy of Illinois

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