

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, Human Computer Interaction, McCormick School of Engineering; GPA: 3.87/4.0  
Advisor: Maia L. Jacobs
- 2021 **Northeastern Illinois University**, Chicago, IL  
Bachelor of Science, Computer Science; 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*. (In Review)
- 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, September 27, 2019.

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## 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)
- Identifying the social support and mental health needs of students during the COVID-19 pandemic
- Mentoring students (ages 7 – 18) learning to code in Saturday workshops hosted virtually and in person
- Designing Community-Based Participatory Research interventions with participation from students
- Attend meetings with WAC's founder to develop student engagement strategies

### 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

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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

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## Technical Skills

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

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## Service

University Future of Health and Computing Collective (FHCC)  
Service NU SROP Pathways to the Professoriate - Experience Navigating Graduate School  
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

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## 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>

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## 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