

# Meredith Young-Ng

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## Education

**UC Davis**, Davis, CA 2021 – Present  
Ph.D., Computer Science  
GPA: 4.00

**Brown University**, Providence, RI 2019 – 2021  
M.S., Computer Science  
GPA: 3.88

**Cornell University**, Ithaca, NY 2016 – 2019  
B.S., Computer Science, *cum laude*  
Minor in Information Science  
GPA: 3.74

## Research Experience

**UC Davis Interactive Organisms Lab**, *Research Assistant* Feb. 2023 – Present  
Mentor: Hao-Chuan Wang

- Exploring computational human-AI collaboration methods for group brainstorming

**Lawrence Livermore National Laboratory**, *Game and Simulation Developer* Jan. 2023 – Present

**UC Davis Interactive Organisms Lab**, *Research Assistant* Sept. 2021 – Dec. 2022  
Mentor: Katia Vega

- Prototyped Sweatcessory, a wearable choker necklace for sensing sodium concentrations in sweat; poster presented at ISWC 2022
- Programmed a web application to visualize real-time and previous biosensor analyte data with Javascript using Chrome Bluetooth
- Designed a co-design workshop study with fashion designers and biotechnologists to explore the usability and wearability design considerations of sweat biosensor form factors
- Led a team of 3 other students to design, fabricate, and test the silicone case and electrodes for Sweatcessory

**Brown University Visual Computing Lab**, *Research Assistant* Sept. 2020 – May 2021  
Mentor: James Tompkin

- Worked on a real-time amortized deep view synthesis method to learn depth and disocclusions for VR, using layered multi-sphere images from 6DoF omnidirectional stereo (ODS) video with Tensorflow

**Brown University HCI Lab**, *Research Assistant* Aug. 2019 – Feb. 2021  
Mentor: Jeff Huang

- Designed and fabricated a hand-mounted wearable display with a Raspberry Pi and OLED screen that expands the free-hand interaction region for Portalware, a smartphone-wearable AR mid-air 3D sketching system; implemented 3D sketch editing tools with Unity and C#
- Assisted with autobiographical design evaluation for Portalware system; published in DIS 2021
- Ran pilot study for Throwable, a projectile-based adaptive throwing model with free-hand manipulation in smartphone AR

**GE Global Research, Edison Program Intern - Technical Research**

*June – Sept. 2020*

Mentors: Shaopeng Liu and Masako Yamada (Software & Analytics Group)

- Designed and implemented tool to classify electric breaker faults by converting RTDS simulated phasor measurement unit (PMU) time series data to image stitching and multichannel image encodings in Python
- Trained MLP and FCN models using PMU image encoding inputs in Tensorflow, achieving > 99% Accuracy

**Cornell University Graphics & Vision Lab, Research Assistant & Summer 2018 REU** *May 2018 – Aug. 2019*

Mentors: Steve Marschner and François Guimbretière

- Simulated a 3D knitting machine (CrochetMatic) by constructing 3D stitch mesh-like polyline block models in Blender and a pipeline to convert these models into B-splines for simulator input
- Built a GPU cloth rendering pipeline to simulate input knitting patterns, generating images of fabric throughout simulation

## Research Experience

**Sweatcessory: a wearable necklace for sensing biological data in sweat**

**Meredith Young-Ng**, Grace Chen, Danielle Kiyama, Anna-Sofia Giannicola, Erkin Şeker, and Katia Vega  
*Proceedings of the 2022 ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp/ISWC '22 Adjunct)*

**Portalware: A Smartphone-Wearable Dual-Display System for Expanding the Free-Hand Interaction Region in Augmented Reality**

Jing Qian\*, Tongyu Zhou\*, **Meredith Young-Ng\***, Jiaju Ma, Angel Cheung, Xiangyu Li, Ian Gonsheer, and Jeff Huang

*Proceedings of the 2021 ACM Conference for Designing Interactive Systems (DIS)*

**Portalware: A Smartphone-Wearable Dual-Display System for Expanding the Free-Hand Interaction Region in Augmented Reality**

Jing Qian, **Meredith Young-Ng**, Xiangyu Li, Angel Cheung, Fumeng Yang, and Jeff Huang

*Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI LBW)*

## Honors & Awards

**UC Davis GGCS GHC 2022 Award**

*Sept. 2022*

**CRA-WP Grad Cohort for Women 2020** (*postponed to 2021*)

*Apr. 2021*

**Anita B.org GHC 2020 Student Scholarship**

*Sept. 2020*

**Cornell Engineering Dean's List**

*Fall 2016 – Spring 2017, Spring 2018 – Spring 2019*

**Shell Eco-Marathon Americas 2018, 5<sup>th</sup> place**

*Apr. 2018*

## Other Experience

**Cornell University Resistance Racing, Software Developer**

*Sept. 2016 – Sept. 2018*

- Designed, tested, and implemented data acquisition system for the team's battery electric vehicle using the Particle Electron and a Raspberry Pi to handle I<sup>2</sup>C, SPI, and UART communications with the battery management system, motor controller, and sensors to send data to the Particle Cloud
- Programmed the CANBUS communication system for electrical systems in VCL to build the team's 2016 electric motorcycle

## Teaching Experience

**UC Davis, Teaching Assistant**

- ECS 164: Human-Computer Interaction

*Winter 2022*

**Brown University, Teaching Assistant**

- CSCI 1290: Computational Photography and Image Manipulation

*Spring 2020*

- CSCI 1951-C: Designing Humanity Centered Robots (*Head Teaching Assistant*) *Fall 2019*

**Cornell University, Teaching Assistant**

- CS 4820: Introduction to Analysis of Algorithms *Spring 2019*
- CS 4620: Introduction to Computer Graphics *Fall 2018*

**Stanford iD Tech Camps, Instructor**

- Introduction to Java Coding *Summer 2017*

## Undergraduate Student Mentoring

Grace Chen	<i>Apr. 2022 – Dec. 2022</i>
Danielle Kiyama	<i>Mar. 2022 – Aug. 2022</i>
Anna-Sofia Giannicola	<i>June 2022 – Aug. 2022</i>

## Service

AWIS Northern California Chapters (AWIS-NCC), <i>Secretary</i>	<i>Feb. 2023 – Present</i>
Sacramento Valley AWIS, <i>Member &amp; Webmaster</i>	<i>Feb. 2022 – Jan. 2023</i>

**Reviewer**

CC 2022

**Student Volunteer**

UbiComp/ISWC 2022

**UC Davis**

Graduate Group in Computer Science, <i>Student Ambassador</i>	<i>Jun. 2022 – Oct. 2022</i>
Equity in STEM and Entrepreneurship (ESTEME), <i>Member</i>	<i>Feb. 2022 – June 2022</i>

**Brown University**

CS Diversity Committee, <i>Member</i>	<i>Mar. 2020 – May 2021</i>
RISD   Brown Design for America, <i>Closing the Gender Gap in CS Team Member</i>	<i>Sept. 2019 – May 2020</i>

**Cornell University**

Diversity Programs in Engineering, <i>CURIE Academy Program Assistant</i>	<i>July 2019</i>
College of Engineering, <i>Engineering Peer Advisor</i>	<i>Mar. 2017 – May 2019</i>
Diversity Programs in Engineering, <i>CURIE Academy Volunteer</i>	<i>July 2018</i>
Society of Women Engineers, <i>Community Outreach Chair</i>	<i>Sept. 2017 – Sept. 2018</i>
Society of Women Engineers, <i>High School Outreach Chair</i>	<i>Sept. 2016 – Sept. 2017</i>

## Skills

**Programming Languages:** Python, Java, Javascript, HTML, CSS, C++, C, R, MATLAB, LaTeX

**Other Skills:** CAD (Fusion 360), 3D Printing, Laser Cutting, Autodesk Maya, Adobe Suite

**Interests:** Violin, Chamber Music, Piano, Electric Cars, Creative and Expository Writing