

# 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* *Sept. 2021 – Present*  
Mentor: Katia Vega

- Exploring new wearable form factors and data visualizations for sweat biosensors under Prof. Katia Vega; developed Sweatcessory, a wearable choker necklace prototype for sensing sodium concentrations in sweat (poster accepted to ISWC '22)
- Programmed a web application to visualize real-time and previous biosensor analyte data with Javascript using Chrome Bluetooth
- Currently developing 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

## Publications

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

*Spring 2020*

*Fall 2019*

**Cornell University**, *Teaching Assistant*

- CS 4820: Introduction to Analysis of Algorithms
- CS 4620: Introduction to Computer Graphics

*Spring 2019*

*Fall 2018*

**Stanford iD Tech Camps, Instructor**

- Introduction to Java Coding

*Summer 2017*

**Undergraduate Research Mentoring**

Grace Chen  
Danielle Kiyama  
Anna-Sofia Giannicola

*Apr. 2022 – Present*  
*Mar. 2022 – Present*  
*June 2022 – Aug. 2022*

**Service**

**Reviewer**

CC 2022

**Student Volunteer**

UbiComp/ISWC 2022

**UC Davis**

Graduate Group in Computer Science, *Student Ambassador*  
Sacramento Valley AWIS, *Member & Webmaster*  
Equity in STEM and Entrepreneurship (ESTEME), *Member*

*Jun. 2022 – Present*  
*Feb. 2022 – Present*  
*Feb. 2022 – Present*

**Brown University**

CS Diversity Committee, *Member*  
RISD | Brown Design for America, *Closing the Gender Gap in CS Team Member*

*Mar. 2020 – May 2021*  
*Sept. 2019 – May 2020*

**Cornell University**

Diversity Programs in Engineering, *CURIE Academy Program Assistant*  
College of Engineering, *Engineering Peer Advisor*  
Diversity Programs in Engineering, *CURIE Academy Volunteer*  
Society of Women Engineers, *Community Outreach Chair*  
Society of Women Engineers, *High School Outreach Chair*

*July 2019*  
*Mar. 2017 – May 2019*  
*July 2018*  
*Sept. 2017 – Sept. 2018*  
*Sept. 2016 – Sept. 2017*

**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