Meredith Young-Ng

UC Davis
Department of Computer Science
Davis, CA 95616

Email: mjyoungng@ucdavis.edu
Homepage: https://meredithyoung-ng.github.io/

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 Gonsher, 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, 5th 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^2C, 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 Research Mentoring

Grace Chen *Apr. 2022 – Present*
Danielle Kiyama *Mar. 2022 – Present*
Anna-Sofia Giannicola *June 2022 – Aug. 2022*

Service

Reviewer
CC 2022

Student Volunteer
UbiComp/ISWC 2022

UC Davis
Graduate Group in Computer Science, *Student Ambassador* *Jun. 2022 – Present*
Sacramento Valley AWIS, *Member & Webmaster* *Feb. 2022 – Present*
Equity in STEM and Entrepreneurship (ESTEME), *Member* *Feb. 2022 – Present*

Brown University
CS Diversity Committee, *Member* *Mar. 2020 – May 2021*
RISD | Brown Design for America, *Closing the Gender Gap in CS Team Member* *Sept. 2019 – May 2020*

Cornell University
Diversity Programs in Engineering, *CURIE Academy Program Assistant* *July 2019*
College of Engineering, *Engineering Peer Advisor* *Mar. 2017 – May 2019*
Diversity Programs in Engineering, *CURIE Academy Volunteer* *July 2018*
Society of Women Engineers, *Community Outreach Chair* *Sept. 2017 – Sept. 2018*
Society of Women Engineers, *High School Outreach Chair* *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