

Meredith Young-Ng

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EDUCATION

UNIVERSITY OF CALIFORNIA, DAVIS

Ph.D. in Computer Science

GPA: 4.00

Davis, CA
Sept. 2021 — Present

- **Head TA:** ECS 164: Human-Computer Interaction (Winter '22)

BROWN UNIVERSITY

M.S. in Computer Science

GPA: 3.88

Providence, RI
May 2021

- **Head TA:** CSCI 1951-C: Designing Humanity Centered Robots (Fall '19); TA: CSCI 1290: Computational Photography (Fall '20)

CORNELL UNIVERSITY

B.S. in Computer Science, Cum Laude | Minor: Information Science

GPA: 3.74

Ithaca, NY
May 2019

- **TA:** CS 4620: Intro to Computer Graphics (Fall '18) and CS 4820: Intro to Analysis of Algorithms (Spring '19)

RELATED EXPERIENCE

UC DAVIS INTERACTIVE ORGANISMS LAB, Research Assistant

Sept. 2021 — Present

- Designing new wearable form factors and data visualizations for sweat biosensors; developed Sweatcessory, a wearable choker necklace biosensor prototype for sensing sodium concentrations in human sweat (poster accepted to ISWC '22)
- Implemented a web application to visualize real-time and previous biosensor analyte data with Javascript using Chrome Bluetooth
- Developing a co-design workshop evaluation for usability and wearability considerations of sweat biosensor form factors
- Managed a team of 3 other students to design, fabricate, and test the silicone case and electrode sensors for Sweatcessory

BROWN VISUAL COMPUTING LAB, Research Assistant

Sept. 2020 — May 2021

- Implemented occlusion map option for 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 HUMAN-COMPUTER INTERACTION LAB, Research Assistant

Aug. 2019 — Feb. 2021

- Designed and fabricated a hand-mounted wearable display (Portalware) that expands the free-hand interaction region in an AR smartphone-wearable dual-display mid-air 3D sketching system; published at CHI 2020 LBW & DIS 2021
- Assisted with autobiographical design study to generate user feedback to iterate upon the Portalware system
- Ran pilot study for an adaptive projectile-based throwing model (Throwable) that uses free-hand manipulation in smartphone AR

GE RESEARCH, Edison Program Intern – Technical Research (Software & Analytics Group)

June 2020 — Sept. 2020

- Designed and implemented analytical deep learning tool to classify electric breaker faults from RTDS simulated phasor measurement (PMU) time series data; developed two new multi-PMU feature embedded image encoding approaches with Python
- Trained MLP and FCN models with PMU image encoding inputs with Tensorflow, confirming viability of approach

CORNELL GRAPHICS AND VISION LAB, Research Assistant & Summer 2018 REU

May 2018 — Aug. 2019

- Simulated a 3D knitting machine (CrochetMatic) with a pipeline that constructs 3D stitch mesh-like polyline block models (Blender) converted into B-spline input; built a GPU cloth rendering pipeline to render knitting patterns throughout simulation

PROJECTS

SMALL MULTIPLES SEQUENCE-CONTROLLED TF EDITOR

Nov. — Dec. 2021

- Created new small multiples sequence-controlled transfer function (TF) user interface for a 3D volume visualization tool for designers with Javascript and WebGL. Conducted an exploratory user study, demonstrating faster task completion time than the baseline TF editor; analyzed results to develop recommendations for improving learnability in 3D visualization tools for designers.

PATH TRACER

Feb. 2020

- Built a physically realistic CPU path tracer in C++ with Qt. Implemented soft shadows, indirect illumination, Russian Roulette path termination, and event splitting with ideal diffuse, glossy specular, ideal specular (mirror), and dielectric refraction BRDFs.

SKILLS/INTERESTS

PROGRAMMING LANGUAGES: Python, Java, Javascript, C++, C, HTML, CSS, R, MATLAB, LaTeX

FABRICATION SKILLS: CAD (Fusion 360), 3D Printing, Laser Cutting

INTERESTS: Violin ♦ Chamber Music ♦ Piano ♦ Electric Cars ♦ Pokémon ♦ Creative Writing

OUTREACH: Sacramento Valley AWIS (Webmaster), UCD ESTEME (Member), Brown CS Diversity Committee, Cornell Engineering Peer Advisor, Cornell Society of Women Engineers (Outreach Chair), Cornell CURIE Academy (Program Assistant)