Meredith Young-Ng

https://github.com/MeredithYoung-Ng
Email: meredith_young-ng@brown.edu

EDUCATION

BROWN UNIVERSITY Providence, RI
M.S. in Computer Science **GPA**: 4.0 *Expected May 2021*

- **Head TA** for CSCI 1951-C: Designing Humanity Centered Robots (Fall 2019)
- **Relevant Coursework**: HCI Seminar ♦ Interactive Computer Graphics ♦ Computer Vision for Graphics & Interaction ♦ UI/UX

CORNELL UNIVERSITY Ithaca, NY
B.S. in Computer Science, Cum Laude | Minor: Information Science **GPA**: 3.74 *May 2019*

- **TA** for CS 4620: Intro to Computer Graphics (Fall 2018) and CS 4820: Intro to Analysis of Algorithms (Spring 2019)
- **Relevant Coursework**: Interactive Computer Graphics ♦ Rapid Prototyping & Physical Computing ♦ Algorithms ♦ Ubiquitous Computing ♦ Human-Robot Interaction ♦ Artificial Intelligence ♦ Linear Algebra ♦ Operating Systems ♦ Embedded Systems

RELATED EXPERIENCE

BROWN HUMAN-COMPUTER INTERACTION LAB, *Research Assistant* *Aug. 2019-Present*

- Designed and fabricated a hand-mounted wearable display with a Raspberry Pi and OLED screen that expands the free-hand interaction region for a smartphone-wearable dual-display mid-air 3D sketching system in AR (Portalware) under Prof. Jeff Huang
- Implementing editing tools for 3D sketches to enhance the smartphone AR user experience using Unity and C#
- Assisting with autobiographical design practices to generate user feedback to iterate upon the Portalware system
- Building a projectile-motion based adaptive throwing model (Throwable) for free-hand manipulation in smartphone AR
- Conducting literature review for 3D mid-air sketching in VR/AR; writing two conference paper submissions to CHI 2021

GE RESEARCH, *Edison Program Intern – Technical Research* *June 2020-Present*

- Building deep learning tools to improve phasor measurement unit situation awareness in the Software & Analytics Group

CORNELL GRAPHICS AND VISION LAB, *Research Assistant & Summer 2018 REU* *May 2018-Aug. 2019*

- Simulated a 3D knitting machine (CrochetMatic) under Prof. Steve Marschner and Prof. François Guimbretière by constructing 3D stitch mesh-like polyline block models in Blender and a pipeline to convert these models into B-splines
- Built a GPU cloth rendering pipeline to simulate input knitting patterns and generate images of fabric throughout simulation
- Adjusted parameters to simulate the twisting of a rod in a CPU simulator as described in Columbia's Discrete Elastic Rods paper

CORNELL RESISTANCE RACING, *Software Developer* *Sept. 2016-Sept. 2018*

- Designed, tested, and implemented data acquisition system 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
- Collaborated with a 25+ person team to build a battery electric vehicle; placed 5th in the international 2018 Shell Eco-Marathon
- Programmed the CANBUS communication system for electrical systems in VCL to build the team's 2016 electric motorcycle

PROJECTS

SURFACEBRUSH *Apr.-May 2020*

- Implemented manifold mesh reconstruction from VR 3D brush strokes via SurfaceBrush method [Rosales et al. 2019] using Qt and C++ with 3 other teammates; programmed Viterbi algorithm for vertex matching, mesh strip generation, and Laplacian smoothing

TILE TUNES *Aug.-Dec. 2018*

- Designed and fabricated a line tracking robot that plays musical compositions corresponding to colored tiles with 2 team members
- Implemented colored tile detection, a graphical OLED display, and audio through I^2C, SPI, and UART using an Adafruit Feather M4

PUBLICATIONS

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

SKILLS/INTERESTS

PROGRAMMING LANGUAGES: Java, Python, Javascript, C++, C, C#, HTML, CSS, R, MATLAB, LaTeX
FABRICATION SKILLS: CAD (Fusion 360), Laser Cutting, 3D Printing, Woodworking
INTERESTS: Violin ♦ Piano ♦ Brown | RISD Design for America ♦ Electric Cars ♦ Pokémon ♦ Creative Writing
OUTREACH: Brown CS Diversity Committee (2020-Present), Cornell Engineering Peer Advisor (2017-2019), Cornell Society of Women Engineers (Community & High School Outreach Chair 2016-2018), Cornell CURIE Academy (Program Assistant 2019)