Erin Woo

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Projects

Bow & Arrow Haptic Simulation: - *ECE 194T: Haptics: Perception, Engineering & Interaction - Winter 2019*
C++/CHAI3D/Novint Falcon/Blender/OpenGL

- Constructed a force-feedback simulation of a bow and arrow with haptic and visual stimuli on the Novint Falcon haptic system.
- Modeled the physics of the bow string tension force and the corresponding graphical display using the CHAI3D haptic library with OpenGL.

IP Address Hash Table Implementation - *CS 130A: Data Structures and Algorithms - Winter 2019*
C++

- Implemented a universal hashing scheme using a modulo primes method with separate chaining to resolve collisions.

Tactile Echoes (*Simon VR*) - *RE-Touch Lab - UC Santa Barbara; May - September 2018*
Unity3D/C#/Oculus Rift

- Designed and built the backend functionality of the VR engine that bridged the communication between hand tracking and the haptics engine in Unity3D (C#) for Oculus Rift. Implemented the handheld memory-based game, Simon, in virtual reality with haptic and auditory feedback.

BlockbasedVR – *Gevirtz Graduate School of Education - UC Santa Barbara; November 2017 - March 2018*
Unity3D/C#/HTC Vive

- Reworked the architecture of Blockbased VR's code to fit a model-view-controller framework, which allowed the code to be more flexible and debuggable during the project's lifespan.

MentorMeet – Mulesoft Coding Cup Hackathon; September 2016; *Overall Best Winner*
HTML/CSS/Javascript/Bootstrap

- Developed a web service that connects professional mentors in STEM fields with minority high school mentees. Implemented web APIs such as Google Maps and Facebook.

Technical Tools

Programming Languages (from most to least experienced): C++, C#, Java, Assembly (MIPS), Python, HTML/CSS, Javascript, Swift
Tools/Skills: Emacs, UNIX shell, Linux, GDB, Valgrind, CHAI3D, Visual Studio Code, QtSpim, Xcode, LaTeX, Unity3D, Git/Github, MaxMSP, test driven development (TDD)/unit testing, Azure

Work and Experience

End User Computing Student Tech - *Life Sciences Computing Group - UC Santa Barbara | July 2018 - Present*

- Managed network system administration, university-owned software distribution, and device IP addressing.

EUREKA! Scholars Research Intern - *RE-Touch Lab - UC Santa Barbara | May - September 2018*

- Designed, prototyped, and built applications for dynamic finger-worn haptics in virtual reality systems using Unity3D/C# in Oculus Rift using Leap Motion and MaxMSP (*Tactile Echoes)*.
- Studied the effect on haptics in virtual reality on trial participants and co-authored research on haptic applications. Submitted findings to the ACM SIGCHI conference.

Undergraduate Research Assistant - *Gevirtz School of Education - UC Santa Barbara | Nov. 2017 - March 2018*

- Co-developed the back-end infrastructure of a Scratch-based virtual reality game in Unity3D/C# for HTC Vive that teaches young children how to code (*Blockbased VR*).

Research Intern - *UCSB Summer Institute in Mathematics and Science | Aug. 2017*

- Analyzed the mathematical propagation of epidemic graph networks in Matlab in a 2-week research intensive for freshmen.
- Hosted a final research talk to present findings to UCSB faculty and academics.

Instructional Tutor - *Bay Area Learning Academy | Millbrae, CA | Aug 2016 - July 2017*

- Developed/led weekly Scratch/Python-based coding curriculum for students aged 5-13.

Creative Code Youth Apprentice - *Dolby Labs| San Francisco, CA | Oct. 2016 - Feb. 2017*

- Designed, programmed, and implemented a 60 ft. long visual and audio art installment ("The Organic Mecanique") using Processing in Java and Ableton. Featured at the Dolby Labs Digital Ribbon Screen.

Girls Who Code Summer Immersion Program - *Twitter SF* | June-Aug. '16

- Introduction to programming fundamentals and data structures using Python and Javascript.
- Final project culminated in a web-based Javascript platform game ("The Human Race") that explored the effects of racial privilege in everyday life.

Education

University of California, Santa Barbara – *2017-2021*

- **Computing B.S.,** College of Creative Studies
  - Coursework: Data Structures and Algorithms, Linear Algebra, Object-oriented Programming, Formal Languages and Automata, Computer Organization, Computer Architecture, Problem Solving with Computers, Probability and Statistics
  - Organizations: SB Hacks V Organizing Team (Sponsorship Coordinator), Alpha Sigma Kappa – Women in Technical Studies (Webmaster/Photographer)
  - Scholarships: Grace Hopper 2018 UCSB CS Departmental Scholarship