

Columbia University, School Of Engineering and Applied Science

Fall 2020 – Spring 2022

(Overall GPA: **3.79**)

Bachelor of Science

(3-2 Engineering Combined Plan) Major: **Computer Science**

Colgate University,

Fall 2017 – Spring 2020

(Overall GPA: **3.51**)

Bachelor of Arts (3-2 Engineering Combined Plan) Major: **Physics**; Minors: **Mathematics, Jewish Studies**

Design Experience

Columbia University, COMS W4170 User Interface Design, *Teaching Assistant*

Fall 2021

- Served as mentor to 16 students, providing guidance and feedback as they worked on an individual design project using the User Centered Design process.
- Guided students as they performed Contextual Inquiries, Storyboarding, Rapid Prototyping, and Study Design.
- Assisted students in learning design software such as Balsamiq and Figma, as well as web technologies such as HTML/CSS/Javascript.
- Answered student questions and provided advice at office hours and online and graded bi-weekly homework assignments.

Columbia University, (HCI) Computer-Enabled Abilities Laboratory, *Research Assistant*

Fall 2020 – Summer 2021

- Conducted research with Prof. Brian Smith on techniques to enable blind accessibility in video games.
- Helped implement a new blind-enabled interaction method in Unity based on joystick-controlled ray casting.
- Designed and performed numerous user studies with visually impaired gamers. Performed analysis and participated in written presentation of results.
- Second author on two resulting publications, one presented at UIST and the other currently under review at CHI.

Tsinghua University, X-Studio HCI Lab, *Research Intern*

Fall 2016 – Summer 2017, Winter 2017

- Completed, debugged, and finished major component of an interactive storybook written in Unity that connects to a custom capacitive device able to provide haptic/textural feedback within a 3-day deadline. Learnt to use Microsoft Foundation Classes, Unity inter-process communication, and C++ inter-process communication. Successful completion within deadline and demonstration in front of exhibition visitors.
- Collaborated with graduate students to build interactive device that tracks input on a surface using temperature changes and a game based on the device. Implemented particle system, parts of input detection and game logic, and Arduino code for haptic tools. Used C++ OpenFrameworks library, XBee wireless communication, and various sensors for the haptic tools.
- Participated in numerous other projects. Edited 10+ papers in support of publication efforts and participated in the design of user studies.

Front-end Development Experience

BorderX Lab, *Front-end Development Intern*

Summer 2019

- Built internal software from scratch using React in collaboration with a backend programmer and a PM. System now used by entire sales team to easily send digital coupons to all customers via methods such as SMS, push notifications, email, etc., saving time and improving efficiency over previous methods of doing so.
- Added features and user interface improvements to other internal systems written in legacy AngularJS, Angular, or React. Improvements allowed significant time savings for sales team.
- Gained experience in interfacing with back-end systems, using continuous deployment, and writing pipeline scripts.

Hulu, *Front-end Development Intern*

Summer 2018

- Participated in an agile team and supported efforts to upgrade and maintain the front-end systems of Hulu.com.
- Gained better understanding of industry concepts such as MVC, server architecture, VOD, REST API, CDN, load distribution, web routing, cookies etc., as well as corporate processes such as Product Owners, QC, code review, etc., and aspects of Agile development such as Scrum and Jira.
- Migrated around a thousand test cases to a different testing framework and introduced snapshot testing to certain tests. Also wrote original test cases for a microservice written in Go and increased code coverage to 100% for multiple files.
- Fixed bug in eslint-import-resolver-babel-module, an open source NPM package with 143,000+ weekly downloads.
- Participated in Hulu Beijing Office Hackathon in a team of three and won “Coolest Hackathon Project” with RMB 2,000 prize out of 22 competing teams. Project was completed in 2 days and consisted of a “Katamari” ball able to pick up elements of any website and graphically display them as if picked up by a 3-dimensional ball. Wrote particle system and other physics effects based on knowledge from Physics courses.

Publications

Towards a Generalized Acoustic Minimap for Visually Impaired Gamers.

Nair, V., **Ma, S.**, Huddleston, H., Lin, K., Hayes, M., Donnelly, M., Gonzalez, R., He, Y. (2021). In **UIST '21: The Adjunct Publication of the 34th Annual ACM Symposium on User Interface Software and Technology**

IRelics: Designing a Tangible Interaction Platform for the Popularization of Field Archaeology.

Lu, Q., **Ma, S.**, Xu, Y., Li, J. (2019). In Proceedings of **TEI '19: ACM International Conference on Tangible, Embedded and Embodied Interaction.**