**Brian Shao-en Ma**

Full resume and more info at **www.brian.ma**

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**Columbia University, School Of Engineering and Applied Science**, New York, NY, USA Fall 2020 – Spring 2022

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

**Colgate University**, Hamilton, NY, USA Fall 2017 – Spring 2020

* **Bachelor of Arts –** (3-2 Engineering Combined Plan) Major: **Physics**; Minors: **Mathematics, Jewish Studies** (Overall GPA: **3.51**)

**Relevant Coursework:** COMS4705: Natural Language Processing, COMS4170: User Interface Design, COMS4167: Computer Animation

# Technology and Research Experience

**Colgate University**, **Department of Physics and Astronomy**, *Research Assistant*, Hamilton, NY, USA Summer 2020

* Conducted research with Prof. Ken Segall on simulations of neurons using Superconducting Josephson Junctions. Purpose was to use neural dynamics to create logic components that could operate 100 times faster and be 300 times more efficient than traditional transistor based logic circuits.
* Successfully created first working Josephson-Junction-neuron based half-adder, results allowed a clearer path to creating other logical components based on JJ-neurons.
* Used Xic and WRspice to design and simulate circuits. Wrote scripts to automate testing of circuits and used MATLAB to process data.

**BorderX Lab**, *Front-end Development Intern*, Shanghai, China 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*, Beijing, China 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.

**Tsinghua University**, **X-Studio HCI Lab**, *Research Intern*, Beijing, China 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.

# Leadership Experience

**Colgate University** **Photography Club**, *President (Spring 2020), Treasurer (Fall 2018 – Fall 2019)*

* Managed finances and collaborated with team members to receive funding of around 19,000 USD to procure photography equipment.
* Assisted in organizing system for managing equipment lending, including the drafting of liability clauses and system for inventorying.
* Ran photography workshops on topics such as composition and photography software.
* Helped recruit new members, review leadership team applications, and organize projects such as Humans of Colgate and exhibitions.

**High School Student Council Marketing Department**, *Director and Lead Illustrator*

* Led marketing department in which students made marketing material for student council sponsored events.
* Designed numerous posters for events and clubs using Adobe Photoshop and Illustrator.

# Publications

Lu, Q., **Ma, S.,** Xu, Y., Li, J. (2019). IRelics: Designing a Tangible Interaction Platform for the Popularization of Field Archaeology. In Proceedings of TEI '19: ACM International Conference on Tangible, Embedded and Embodied Interaction. Tempe, AZ.

# Certificates

**Reasoning, Data Analysis, and Writing Specialization**, Duke University, Coursera Nov 2016

**The Data Scientist’s Toolbox**, Johns Hopkins University, Coursera Oct 2014