# Mckenna Cisler

**Robotics | Embedded | Software**

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## EDUCATION

**B.S. Computer Science, B.A. Engineering** **GPA:** 3.77 / 4.0 **Sept 2016 — May 2020**
***Brown University**, Providence, RI*
**Courses:** Introduction to Software Engineering, Introduction to Computer Systems, Digital Electronics Systems Design, Electrical Circuits and Systems, Machine Learning, Distributed Computing Systems, Algorithms, Signals & Systems

## TECHNICAL EXPERIENCE

**Software Engineering Intern**
***The MITRE Corporation,** Bedford, MA* **June 2018 — Aug 2018**
- Built Android app to automate radio network and power consumption testing. The app used UI automation to control components of a client app in order to produce realistic simulated user interaction and network traffic.
- Integrated system with an existing infrastructure for centralized test configuration and synchronized execution.
- Enabled execution of a 250-node radio test by eliminating the need for human participants to operate phones.

**Technical Lead / Flight Software Engineer**
***Brown Space Engineering,** Brown University* **Sept 2016 — Present**
- Overseeing all technical projects for 75+ student team: on-orbit satellite maintenance and future spacecraft.
- Working on flight & ground software and telemetry analysis for “EQUiSat” CubeSat launched in July 2018.
- Working on systems engineering for radio link, tracking, and data processing systems of ground station network.
- Designed satellite operating system; wrote RTOS tasks in C for satellite command and control, OS state handling, peripheral control and timing, data collection, and transmission schema & protocol.
- Wrote bootloader to correct program memory from radiation-safe backup; performed final satellite configuration.

**Robotics Technician**
***Humanity-Centered Robotics Initiative,** Brown University* **Sept 2016 — Present**
- Designed and built hardware and software for “Walkerbot” elderly assistive robot (C++, ROS, BeagleBone).
- Built analytics logging API and database for studying user interaction with an assistive toy (Node, MongoDB).
- Prototyped ultrasonic localization system to help the elderly find household objects (ATtiny, NodeMCU, Node).
- Prototyped universal video conferencing and teleoperation platform for telepresence robots (Node, P2P, ROS).
- Responsible for hardware interfacing and voice interaction for “Tablebot” telepresence robot (C++, Python, ROS).
- Designed trash can monitoring system for Brown Facilities Department; ran successful trials (Node, NodeMCU).

**Teaching Assistant**
***Introduction to Computer Systems,** Brown University CS Department* **Aug 2018 — Present**
- Holding office and lab hours, grading student work, and developing course labs and projects.

**Educational Resource Developer / Instructor**
***White Mountain Science, Inc.,** Bethlehem, NH* **Jan 2015 — Aug 2017**
- Designed High Altitude Balloon (HAB) on-board, tracking, and retrieval systems and procedures.
- Built ATtiny85-based “paper circuit” controller to be sold to educators, including documentation, manufacturing, and marketing materials; shipped 10 prototypes to local school.
- Developed educational tools and coding lessons (ScratchX extensions, Javascript & Scratch tutorials).

## PERSONAL PROJECTS

- Java / Javascript webapp for Wikipedia Game; developed websocket communication protocols, designed Wikipedia page link caching system to speed up page crawling and game generation; decreased memory usage by 60% for Heroku deployment. *Introduction to Software Engineering final team project*
- Javascript-based academic citation conversion engine and Apache / PHP web app; 1000+ weekly visitors.
- Q-learning AI for checkers using TensorFlow. *Hack@Brown team*
- Raspberry-Pi-based DIY alarm clock with custom 3D-printed case and Python / Javascript web interface.
- Visualization of socioeconomic data on Hubway stations using Node, D3.js. *Brown Datathon team*
- Webapp to show public sentiment of firms by analyzing news coverage. Node, MongoDB. *HackHarvard team*

## SKILLS

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|---|---|
| **Languages** | Strong in C, Java, Python; Proficient in Javascript, Go, C++; Experience with MATLAB, Verilog |
| **Tools** | Strong in FreeRTOS, ROS, Node, jQuery, Bootstrap, & Git; Proficient in React, OpenCV, Android |
| **Other** | CAD (Inventor, OnShape, Blender), 3D Printing, Laser Cutting, Mill & Lathe<br>Atmel MCUs, Raspberry Pi, Arduino, FPGAs/CPLDs (minimal), and digital/analog components<br>Graphic design (Premier, Blender, GIMP, Photoshop, Inkscape)<br>Amateur radio operator (callsign KC1ICW), student pilot (can fly solo), and FIRST Robotics (FRC) alum |