

# Alexander Sedgwick Aubuchon

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EDUCATION **Northeastern University** Boston, MA  
*BS in Computer Science* September 2015 - Expected Dec 2019

Coursework: Advanced Algorithms, Theory of Comp., NLP, Quantum Mechanics, Electronics  
Extracurriculars: Tutor for Discrete Structures (2017), Upperclassman Tutor (2016)  
GPA: 3.8/4.0

WORK **CERN, Compact Muon Solenoid** Geneva, Switzerland  
EXPERIENCE *Software Engineer & Data Analyst Coop, EMTF* January 2018 - August 2018

*Python, React, Docker, OpenStack, C++, ROOT*

- Designed and deployed the AutoDQM project - a platform for performing statistical and ML-based tests comparing the data quality monitoring plots between two accelerator runs.
- Analyzed data from the endcap tracker. Used that analysis to predict detector performance after the HL-LHC upgrade where luminosity and event rate will increase massively.

**Draper Laboratories** Cambridge, MA  
*Software Engineer Coop, Machine Intelligence* January 2017 - August 2017

*C#, Python, Matlab*

- Implemented the software interface to a neuro-stimulation device. Designed the next-gen device utilizing wirelessly controlled implants collaborating closely with the hardware/firmware teams. Proposed a schema for communicating the low-latency stimulation control over Bluetooth.
- Performed research into the novel uses of RF sensors on the emissions of electronic devices.
- Integrated new features into an SVM machine learning model designed to use human biometrics to non-invasively detect malintent.

**MIT Media Lab** Cambridge, MA  
*Assistant Researcher, Changing Places* July 2016 - January 2018

*Python, scikit, C#, Unity*

- Researched ML models for quickly predicting the traffic and solar potential of a model city.
- Implemented searching over possible changes to the city for an AI assistant to offer suggestions to optimize city performance metrics.
- Developed a Unity/C# application for real-time visualization of the model city.
- Contributed to a paper describing the project (accepted to Acadia 2018).

PROJECTS + **HackMIT: PacTravel** September 2017  
COMPETITIONS Led the development of a webapp in Typescript where users play PacMan on Google Maps while the places they visit are logged into a data-rich itinerary for use afterwards in real life.

**HackTheMachine - 2nd Place** September 2017  
Used correlations and PCA to improve understanding of highly dimensional Navy ship sensor data.

**Google IO Firebass** July 2016, May 2017  
Won a global ARG to chase down the 'Firebass' by solving puzzles as it fled through the web.

COMPUTER **Languages:** *Extensive-* Python; Typescript; *Versed-* C#; C/C++; Racket; Java; Rust  
SKILLS **WebDev:** REST; Node.js/npm; React; webpack; HTML/CSS  
**Tools:** Unity; Mathematica; Photoshop; Blender (CAD); ROOT  
**Misc:** Git; (Arch)Linux; Vim; L<sup>A</sup>T<sub>E</sub>X

INTERESTS Gaming; Rock Climbing; Computer Design; Electronics