

## EDUCATION

- **Massachusetts Institute of Technology '20** | 4.5 GPA, B.S. Computer Science & Business Analytics
  - **Courses:** Algorithms, Computational Structures, Machine Learning, Mathematics for C.S.
  - **Around campus:** MIT football player; fraternity community service chair; high school student mentor
- **Weymouth High School '16** | Valedictorian
  - **Leadership positions:** NHS President; Varsity Math Team, Football and Basketball Captain

## PROFESSIONAL EXPERIENCE

- **Full Stack Developer, Nodal** | Cambridge, MA 08.2017-Present
  - **Front-end:** Working to develop dashboard application built on react for location analytics
  - **Security:** Built authentication system with secure tokenization on client and server side
- **Data Science Intern, Philips Research North America** | Cambridge, MA 05.2017-08.2017

Worked with research team to implement deep learning pipeline for lung cancer image analysis.

  - **Data analytics:** Streamlined data from CSV/XML/image formats to common HDF5 data structure
  - **Scalable product:** Wrote HDF5 data loader in Python for fast I/O of 20K+ lung nodule crops with preprocessing extensibility and documentation
  - **Machine learning:** Evaluated deep 2D CNN's for multi-label lung nodule classification use case
  - **IP generation:** Authored invention disclosure for ML-based clinician support system w/ MGH (Boston)
- **Research Software Engineer, CityScope @ MIT Media Lab** | Cambridge, MA 09.2016-08.2017

Assisted Master's Thesis seeking improved data-driven city space allocation for urban planners.

  - **Agent-based modeling:** Optimized multi-agent Java simulation of 24 hr. to 45 sec. runtime
  - **Data handling:** Generated train/test sets of 10K+ cities for supervised learning with JSON and Python
  - **Machine learning:** Utilized linear regression and shallow CNN for traffic and solar radiation prediction
- **Full Stack Software Engineer Intern, LifeYield** | Boston, MA 05.2015-08.2016

Served as agile developer for front-end web fixes and in-house monitoring for financial firm.

  - **Back-end optimization:** Sped up all web service calls by 40% via improved XML serialization and processing
  - **In-house dev-ops:** Deployed log monitor with C# to connect cloud computing environment with Splunk server and SQL database

## PROJECTS

- **WildcatConnect iOS App** | <https://wildcatconnect.com> 05.2015-Present

Founder and lead developer of productivity app for Weymouth HS. 2016 #1 Senior Project Award.

  - **User experience:** Integrates push notifications of key events and custom groups for students
  - **Security:** Built on AWS-hosted Express Node.js server with tiered user levels and two-factor e-mail authentication
  - **Workflow integration:** Connects directly to staff e-mail service with simple iOS app and website
  - **Public reception:** Used for 3+ years by 6,000+ users, with interest in expansion to other schools
- **Crime-Traffic Analysis via Unsupervised Learning** | <https://github.com/kalyons11/6.s097-project>

Worked on class project to relate crime activity to traffic flow in dense urban environments.

  - **Data visualization:** Overlaid results from K-means clustering algorithm on Boston city map data

## LANGUAGES

**Advanced:** Python, Java | **Proficient:** JavaScript, C#, HTML, CSS | **Beginner:** C, C++, SQL