

Benjamin J. Caine

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Education

Northeastern University, Boston, MA May 2016
Candidate for Bachelors of Science in Computer Engineering, Minor in Mathematics GPA: 3.74
Honors: Dean's List, Dean's Scholarship
Graduate Courses: Machine Learning, Computer Vision, Complex Networks, Robotic Systems
Courses: Advanced Engineering Algorithms, Linear Algebra, Statistics and Stochastic Processes

Technical Skills

Programming Languages: Python, C++, Ruby, Coffeescript, Java, SQL
Data Science Tools: Keras, Tensorflow, Theano, Scikit-learn, Numpy, Pandas, OpenCV, MATLAB, NetworkX
Storage Technologies: PostgreSQL, Redis, MySQL, MongoDB, Redshift, S3, SQLAlchemy
Web Technologies: React.js, Flask, Ruby on Rails, Sinatra, FlexBox, HTML, CSS

Employment Experience

Northeastern University, Boston, MA – *Machine Learning Research Assistant* September-Present 2015

- Applying machine learning and data mining techniques to model and study human emotion using physiological data (electrocardiogram, epidermal activity) and subject self reporting of emotional events.

Vessel, San Francisco, CA – *Software Engineering Intern* January-June 2015

- Performed clustering and network analysis based on user viewing data for market research and content acquisition strategy. Built first recommendation service for discovering related content.
- Researched, designed and developed a web service to automatically crop photo assets using OpenCV for cover art given a set of aspect ratios. Removed 4-8 hour delay in daily publishing. Saved 10+ hours a week of manual work.
- Developed a variety of web features including twitter integration and tweet scheduling, comment and community moderation tools, and content dashboards. Built both React.js UI and Python backend services.

IDEA: Northeastern's Venture Accelerator, Boston, MA – *Technical Officer* April 2013-December 2014

- Directed IDEA's technical projects, which included re-architecting our venture management, data acquisition and workflow tools, and managed the redesign of our public facing website.

Cogito Corp, Boston, MA – *Software Engineering Co-op* January-June 2014

- Developed multithreaded server side components and features for a real time audio processing and analytics platform that models speech data. Major projects included a multithreaded fault tolerant call processing daemon, LDAP (Active Directory) authentication integration, service scalability testing, and a variety of web APIs.

Smartleaf, Cambridge, MA – *Software Engineering Co-op* January-June 2013

- Developed features for a Ruby on Rails web application that provides automated portfolio management services. Examples include a portfolio strategy drafting tool, trading compliance detection reporting, a flexible CSV deserialization library for getting bank data, and a variety of other web development tasks.

Projects

End-to-End Training of Convolutional Recurrent Neural Networks

- Built a neural network model consisting of Convolutional and Recurrent (LSTM or GRU) layers that learns to calculate the sum of the values of a series of MNIST digit images. It is trained end-to-end, with a series of images as the input, and the summed up scalar value as the output.

Visible Light Communication (Senior Capstone)

- Developed a USB transmitter and receiver capable of transmitting data at dial-up speeds by modulating LEDs faster than the eye can detect. Wrote an optics simulator, implemented encoding/decoding, packetization, memory management, and interprocessor coordination with real time coprocessors on an embedded device.

Interests: Machine Learning, Computer Vision, Network Science, Optimization Algorithms, Statistics, Baseball, Skiing