Caleb A. Helbling

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EDUCATION

Bachelor of Science, Computer Science, Minor in Mathematics
Tufts University, Medford, MA
GPA: 3.72, Graduated Spring 2016
Tau Beta Pi engineering honor society member

SKILLS

Expertise: Programming Language Theory, Computer Graphics, Embedded Systems Programming, Machine Learning, Concurrent Systems, Simulation and Game Development, Front End Web Development, and Mathematics.
Languages: C++, C#, C, Python, Java, JavaScript, Erlang, Haskell, OCaml, F#, Clojure, HCS12 Microcontroller Assembly, SML, PHP, HTML, CSS

EXPERIENCE

Researcher — Summer 2016 - Present
MIT Lincoln Laboratory, Lexington, MA
- Currently working as a software developer researcher at MIT Lincoln Laboratory. MIT Lincoln Laboratory is US Department of Defense research and development center which applies advanced technology to problems of national security.
- The Cyber Systems and Operations Group focuses on enabling full-scope Department of Defense (DoD), intelligence community (IC), and civilian government operations within the cyber domain and across traditional mission domains and sensing layers. The focus is on research and development (R&D) of systems providing situational awareness (SA) and command and control (C2) in the cyber domain.

Developer — Summer 2014
AIR Worldwide, Boston, MA
- Worked as an intern on a research and development team at AIR Worldwide. Researched and implemented solutions for computational geometry problems on elliptic geometry, for use in geospatial analysis.
- AIR Worldwide creates risk modeling software which simulate natural and man-made catastrophes for use by insurance and government organizations.

Developer — Summer 2013
International Business Machines Corporation (IBM), Rochester, MN
- Worked as a software development intern on the z/OS print development team. I developed an analysis program to detect the location and magnitude of differences in print documents outputted by the z/OS Infoprint server transforms for testing purposes.
- The program that I wrote is now in use for transform testing at Crawford Technologies and Ricoh. IBM works closely with Crawford and Ricoh to develop the z/OS Infoprint server.

Independent Game Developer — Summer 2011 - Fall 2012
Jagex Game Studios, Cambridge, United Kingdom
- Developed the Ace of Spades computer game in collaboration with other international developers prior to acquisition by Jagex Ltd. Jagex is the largest game development studio in Europe. Prior to acquisition, Ace of Spades was downloaded 2.5 million times and had a peak concurrent player count of 3500.

Developer — Fall 2012 - Spring 2013
Bolder Thinking, Fargo, ND
- Developed system visualization software for Bolder Thinking as an intern at the North Dakota State University Research and Technology Incubator.
- Bolder Thinking develops cloud based VOIP (Voice Over Internet Protocol) software for enterprise customers.

President — Fall 2012 - Present
Apocrypha, LLC, Faribault, MN
- Created a Limited Liability Company for commercial development of *Blockspell*, a 3D multiplayer combat computer game. I currently develop *Blockspell* during my free time.

ACADEMIA   *Tufts University*   September 24, 2016
Juniper: A Functional Reactive Programming Language for the Arduino, Nara, Japan
- Published "Juniper: A Functional Reactive Programming Language for the Arduino" at the International Workshop on Functional Art, Music, Modelling, and Design (FARM).
- Invented and implemented a programming language and compiler for use in programming Arduino microcontrollers. Juniper offers a number of high level features previously inaccessable to microcontroller programmers.
- Held a demonstration of the Juniper programming language at the FARM Conference in Nara. Japan.
- Helbling, Caleb, and Samuel Z. Guyer. "Juniper: a functional reactive programming language for the Arduino." *Proceedings of the 4th International Workshop on Functional Art, Music, Modelling, and Design.* ACM, 2016.

Tufts University   Fall 2014 - Present
Teaching Assistant, Medford, MA
- Assisting for COMP 50 Concurrent Programming course for the second year in a row. Duties include creating student exercises, holding office hours, grading assignments and answering student questions via online forum.
- COMP 50 is a small, special topic course with only one undergraduate teaching assistant.
- Assisted for COMP 105 Programming Languages course. COMP 105 provides an introduction to the study of programming languages as an intellectual discipline.