

# JOSEPH MARTIN FAHEY

## EDUCATION

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### MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Cambridge, MA

- ***In-Major GPA: 4.3/5.0***
- *Masters of Science in Electrical Engineering/Computer Science (Graduated 2011)*
- Relevant Coursework: Large-Scale Symbolic Systems, Data Communication Networks, Cognitive Robotics, Probability, Interactive Technology Design, Artificial Intelligence, Digital Systems, Web Design.
- *Bachelor of Science in Electrical Engineering/Computer Science (Graduated 2010)*
- *Concentration in Economics*

### ARLINGTON HIGH SCHOOL (Graduated 2006)

Arlington, MA

- ***GPA: 3.7/4.0, Class Rank: 8/287***

## EMPLOYMENT

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### Freelance Development (2019-present) ([www.jfahey.com](http://www.jfahey.com))

Boston, MA & Remote

- Ground-up, custom website development, hosting, and management with AWS EC2, RDS, Route 53, etc. for various local businesses and personnel (ex: [jfahey.com/example](http://jfahey.com/example)).
- Update and modernize existing sites. Provided backend development for small-business management platform.
- Planned time off to focus on health and wellness

### BAE Systems (Summer 2009 - 2018) ([www.baesystems.com](http://www.baesystems.com))

Burlington, MA

- Position: Senior Software Engineer - Secret Security Clearance
- SWE Lead, VIVID Program - Signal Processing optimizations in high-performance computing  
Leveraged GPU parallelization (SIMD - Altivec ISA) to improve signal processing performance and throughput up to 400%. Designed algorithms for vectorized FIR filtering, optimized performance of 1D and 2D symmetric kernels (Gaussian and other linear filters) used in the field for image processing of airborne streaming signal data.
- SWE, VEGS Program - Airborne tactical radar system, live data processing for moving target detection and tracking.  
Developed server API (J2EE) and web dashboard to provide real-time system command and control, management of distributed services, network and storage monitoring, fault management, as well as user authentication and role management for access control to custom privileged based dashboard layouts.
- SWE, INSIGHT - provided development for core services supporting multi-sensor data fusion and multi-target tracking
- Position: Software Engineer II
- SWE, CRASH - A clean-slate approach to building a secure computing system  
As a member of the CRASH team, I designed and developed inherently secure applications and OS services using our architecture's novel, ML-based, functional language providing support for information flow control (IFC). (see pub.)
- SWE Lead, PDDOT - Lead program development for an AFRL research project showcasing the benefits of using AI and particle filtering to determine optimal plan deviation thresholds in military planning systems. (see pub.)
- Position: Software Engineer in VI-A Masters Internship (2009-2011)
- Assisted testing, metrics analysis and development of a probabilistic reasoning tracker for a plan execution system on the Deep Green program.

### Autotegrity, Inc. & ClickHarmonics (Summer 2008) ([www.autotegrity.com](http://www.autotegrity.com), [www.clickharmonics.com](http://www.clickharmonics.com))

Wakefield, MA

- Software & Web Developer, Business Market Analyst
- I provided Ruby on Rails web development, research, market analysis, and new features to optimize click-through rate.

### Coventor, Inc. (Summer 2005-2007) ([www.coventor.com](http://www.coventor.com))

Cambridge, MA

- Software Developer
- 3 years of advanced independent Java and C++ programming for company software. Provided GUI design, implemented new product features and created automated testing tools.

## SKILLS

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- Extensive Java work, as well as experience with Javascript, Python, Django, Ruby, RoR, Scheme, Haskell, ML, C++, MySQL, PHP, HTML/CSS/AJAX, Spring, Docker, Maven, ANT, Jenkins, Android, and Assembly.
- Linux / Unix, Windows, OS X, AWS

## PUBLICATIONS

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- Reubenstein, H., Giannakopoulos, T., Chiricescu, S., Strnad, A., & **Fahey, J.** (2016). Semantically Aware Foundation Environment (SAFE) for Clean-Slate Design of Resilient, Adaptive Secure Hosts (CRASH). BAE Systems Burlington MA.
- **Fahey, J.**, Reubenstein, H., Wittenberg, D., & Sullivan, G. (2015). Benefits of Deploying Inherently Secure Nodes Within a Distributed System. BAE Systems Burlington MA.
- Fahey, J., & Smith, J. (2014). Probabilistic Deviation Detection and Optimal Thresholds. BAE Systems Burlington MA.
- Fahey, J. M. (2011). Real-time futures graph tracking visualization and analysis tool (Thesis M. Eng. Massachusetts Institute of Technology).

## AWARDS

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- (2x) BAE Systems Inc. Decision Aids and Planning Directorate Employee Recognition Award
- BAE Systems Inc. Chairman's Silver Award on CRASH project (2013)
- Semifinalist in the MIT 6.470 (6.188) Web Design Competition (2008)
- Placed 2nd in MA at the JETS (Junior Engineering Technical Society) competition (2006)