

# Aaron Rotenberg

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## Current and past employment

**June 2011-present:** Software Engineer 3, CERTON, Inc. (started as SE 1)

- One of two lead developers on the team designing and implementing the CertSAFE Modeler/Verifier tool for safety-critical software modeling and simulation, written in Java+Swing
- Designed and implemented key features of CertSAFE, such as:
  - To spare users from having to constantly write redundant data type information, implemented a Hindley-Milner-based type system
  - To provide visually-satisfying representations of data flow across wire networks, created a tracing system using Tarjan's biconnected components algorithm
  - To allow long simulations to be navigated efficiently in the user interface, devised an algorithm for in-memory compression of simulated data using search trees
- Conceived of, designed, and implemented an automated test generation tool for software models based upon SMT solving using solvers implementing the SMT-LIB standard
- Wrote JUnit test suites to help verify complex features; used test-driven development to help reduce defects in new code
- Wrote a user interface in C# and a backend in C++/CLI implementing a customer-defined locomotive networking protocol, ultimately resulting in a series of additional contracts with that customer
- Flew to customer sites and presented over the internet to support potential sales and train external users on the use of tools developed in-house

**May-August 2010:** Software Engineer, Alpha Medical Corporation

- Developed a system for automated tracking and calculation of patient Coumadin dosages in Java with a JSP frontend

**May-August 2009:** Software Engineering Intern, Clear Choice Health Center

- Developed a system for automated reporting of OCR survey scans; implemented process improvements

## Expertise

- **Technologies:** Java (including Maven, Swing), Haskell, Python, XML
  - **Some experience with:** C#, OpenGL, PHP, JavaScript, HTML, CSS, C, C++, SQL, JSP, x86 assembly
- **Concepts:** Object-oriented analysis and design, functional programming, design patterns and refactoring, UML, unit testing, relational database design
- **Key software:** Eclipse, Visual Studio, Windows, Unix-like platforms, Subversion, Git

## Other past projects

- Developed a Haskell library for compiling functional languages to the JVM, available on GitHub
- Implemented a high dynamic range 3D raytracer in Java
- Developed real-time Internet collaboration software with a team at Florida Tech (senior project)

## Education

**May 2011:** B.S. in Software Engineering, Florida Institute of Technology (summa cum laude)

## Online

- [stackoverflow.com/users/925960](https://stackoverflow.com/users/925960)
- [github.com/arotenberg](https://github.com/arotenberg)
- [aaronrotenberg.com](https://aaronrotenberg.com)