

Andrew William Gibbs
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Bio

Andrew is a prolific inventor, an inevitable team lead, a conscientious operations manager, and a borne-of-necessity enterprise architect. He thrives on learning complex domains, building software systems that codify what he has learned, assembling teams of high-caliber engineers to bring those systems to fruition, and steering the surrounding ecosystem to maximize the realized value. A renaissance man with full-stack knowledge, Andrew might with equal likelihood be found doing protocol design, data modeling, security analysis, database tuning, or UX work. His fanaticism for naming things and instrumenting processes is a matter of local legend.

Day Jobs

- **Bridgewater Associates** Wilton, CT
Data Engineer 08/2016 – Present

- **Department of Defense** (Grades 13-15) Maryland
Software Engineer, Product Owner, CNO Architect 02/2009 – 08/2016
 - Assumed the team lead position for a distributed collection system prototype
 - Coordinated the successful integration of the system into a variety of corporate systems
 - Prototyped the software product that serves as the command-and-control engine for the system
 - Built a team of engineers around this product and shepherded it from application to platform
 - Improved the workflows and instrumentation data of multiple partner systems
 - Employed this data in highly configurable and extremely impactful analytics and automation faculties
 - Surmounted countless scalability challenges by leveraging deep knowledge of relational database internals, distributed system paradigms, and general computer system architecture
 - Played an outsized role in the conversion of the prototype collection system into a general purpose platform that ultimately came to underpin the majority of the parent office's operations
 - Trimmed end-to-end operations troubleshooting for the parent organization from days or sometimes weeks down to minutes or hours and automated the discovery of a variety of problems
 - Systematized and automated operations to the point that a single skilled operator can now do in minutes what would previously have taken hundreds of conventional operators several days of labor
 - Implemented effective solutions to a variety of legal and policy issues
 - Gave multiple extremely well received conference presentations on this body of work

- **Department of Defense** (Grades 11-13) Maryland
Software Engineer, Product Owner 06/2005 – 02/2009
 - Conceptualized, designed, and implemented a software framework for pluggable integration of a heterogeneous collection of analytic tools into a flow-based programming style environment
 - Built a team of engineers around this product and managed project milestones
 - Structured the workflow execution environment to scale with the addition of servers to a cluster
 - Created a web-based wiring-diagram interface with which end users could connect the inputs and outputs of plug-ins to specify data flows (and did so back in the pre-HTML5 dark ages)
 - Ultimately afforded analysts much greater agility in executing analytic tasks by providing a toolbox of components that were configurable and linkable without conventional programming

- **National Institute of Standards and Technology** Gaithersburg, MD
 Software Engineer, Intern 05/2004 – 08/2004
 - Improved the National Software Reference Library’s data warehouse by decoupling its underlying relational database schema from the ingest formats of downstream COTS and GOTS tools
- **Tufts University, Health Sciences Schools** Boston, MA
 Software Engineer 10/2000 – 08/2003
 - Co-designed a rewrite of a system for course evaluation authoring, completion and reporting, ultimately used by hundreds of students to evaluate dozens of courses
 - Implemented the reporting piece of this course evaluation software
 - Researched potential vulnerabilities to compromise of sensitive student information and designed counter-measures to mitigate them
- **Microsoft** Redmond, WA
 Software Engineer, Intern 05/2001 – 08/2001
 - Worked with testers in the NT Base Test group to automate previously manual testing procedures, ultimately writing a suite of tools that were used to verify Windows XP’s Dynamic Update
- **Compaq** Shrewsbury, MA
 Software Engineer, Intern 05/2000 – 08/2000
 - Worked in the Alpha Chip Development Group in CAD/Test, fleshing out the interface between a circuit analysis tool and its scripting interface
- **Motorola** Mansfield, MA
 Web Developer, Intern 06/1998 – 08/1998
 - Worked in the Customer Satisfaction group, bringing a previously Word document based report management process into a web based system

Consulting Jobs (Commando Software, Sole Proprietor)

- **Fenrir** 2014
 - Provided system architecture consultation to a small financial analytics company
- **Partners Healthcare at Massachusetts General Hospital** 08/2009 – 01/2011
 - Negotiated and provided contract support to the “RaceTrack” radiology case tracking system
 - Reviewed the existing relational database structure and designed myriad improvements
 - Designed and implemented a background job management system for asynchronous processing
 - Designed and implemented a stored procedure based “closure table” management system to underpin database driven management of hierarchical data such as tags and roles
 - Wrote generator code that would export a case in PowerPoint format
- **G2 Web Services through Stryker IP** 04/2006 – 08/2006
 - Negotiated and provided subcontract support to a system for brand protection analytics
 - Developed GUIs that drove analyst workflow for assessing and reporting on policy compliance
 - Evaluated and extended relational database structures to support analyst workflow management

- **US School Of Commercial Music** 09/2002 – 08/2003
 - Negotiated and provided contract support to develop a web based customer community
 - Solicited workflow requirements and developed the GUI for this web application
 - Developed the underpinning relational database for this web application

Open Source Community Contributions

- **Perl DBD::Mock Library** 2005
 - Identified a limitation in the Perl DBD::Mock database unit testing library that interfered with validating the last_insert_id value when inserting into multiple tables with a single connection
 - Discussed issue with maintainer and submitted a patch as well as related test cases and documentation
 - Contribution was released to CPAN on 14 December 2005 as part of DBD::Mock v1.32

Education

- **Johns Hopkins University**, Whiting School of Engineering Baltimore, MD
MS in Security Informatics, MSE in Computer Science 09/2003 – 05/2005
- **Tufts University**, School of Engineering Medford, MA
BSE in Computer Science 09/1998 – 05/2002

Academic Projects

- Cryptographic Pseudonym Based Web Communities (graduate; spring 2005)
- Ad-hoc Wireless Network Configuration (graduate; spring 2004)
- Network Based Delivery Of Very Large Imagery (undergraduate; spring 2002)

Technical Skill Profile

Andrew began programming in high school upon discovery of his TI-85's support for the Basic language. This led him to teach himself to program in C and Perl before heading off to an undergraduate education in Computer Science that afforded him experience in languages ranging from Assembly to Lisp and everything in between, the opportunity to explore such topics as Artificial Intelligence, Virtual Reality, and Operating Systems, and to gain a firm grounding in Electrical Engineering and Mathematics. During subsequent graduate level study he branched out into Distributed Systems, Cryptography, Network Security, and various legal and policy matters.

An assortment of internships and projects during his academic years gave Andrew a strong grounding in software engineering long before taking on full-time permanent positions. By the time he was taking on such positions he found himself doing highly innovative and self-directed work and subsequently in positions of great responsibility as those systems went live. His habit for bootstrapping grassroots projects from nothing has left him a battle-tested full-stack engineer capable of doing everything from system administration to UI development to database tuning to product marketing.

Most recently Andrew has predominantly found himself gravitating toward a stack that includes JavaScript, Ruby, PostgreSQL, Linux, and Git for an assortment of tasks, but he has enough experience in similar languages and tools to pivot easily to other technologies. He dabbles with Amazon Web Services for data mining side-projects and has in recent years tinkered with a combination of power tools, electronics, and C-programming to do some hobbyist robotics work. He is a certified Emacs ninja and tends to attach a UUID and timestamp to everything.