Matthew Coolbeth

Software Engineer and Computer Scientist

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Professional Experience

Feb 2015 – Present **Software Engineer**, ESPN, Bristol, CT.

Building a data platform, using Apache Kafka and friends for streams processing. We have constructed a high-availability distributed system, using Zookeeper for service coordination, with microservices communicating via Apache-Avro-formatted messages using Kafka as a message bus. We are a JVM shop, with most software written in the Java programming language. Heavy use of Git and Maven.

Aug 2010 – Feb 2015 **Applications Developer**, University of Connecticut, Storrs, CT.

Served on an agile software development team building custom enterprise software for university staff. Followed a SCRUM-style methodology with two-week sprints. Used a branch-based (SVN) development process incorporating continual code review and extensive automated testing.

The majority of our products were web applications, built using Python MVC frameworks, developed and hosted on Linux, and using MS SQL Server as a backing data store.

Jan 2010 – Aug 2010 **Software Developer**, QueBIT Consulting, LLC, Wilton, CT.

- Helped to prototype a web application for double-entry book keeping based on the IBM COGNOS TM1 database system.
- Worked on Excel plugin to populate a journal template in an excel spreadsheet from TM1.
- These products later evolved into QueBIT's "ControlWORQ" product.
- Used C#, ASP.NET, SOAP, MySQL, TM1, VBA, APIs for MS Excel.

Sep 2009 – Dec 2009 **Software Developer (Contractor)** , Pfizer, Inc, Groton, CT.

Developed a Java EE web application to process sets of nucleotide sequences for research biologists.

- Collaborated with genomics researchers to develop and refine application requirements.
- Prototyped application to reflect changing requirements in an agile manner.
- The application accepts zip files produced by DNA sequencers, converts each nucleotide sequence to an amino acid sequence, executes an external process to generate a multi-sequence alignment, and then generates a report depicting each alignment.
- Used Java 6 EE, Tomcat, JSP, BioJava, HMMER, JQuery.

Jan 2008 – Aug 2009 **Research Specialist**, University of Connecticut, Storrs, CT.

Worked in an interdepartmental research group to build two energy-demand-forecasting systems for ISO New England.

- Prototyped forecasting methods incorporating signal processing and machine learning techniques (wavelet decomposition & neural networks).
- Primary Java developer for two forecasting engines: one short-term (days) and one very short term (hours). The later system was later open-sourced.
- Used Java 6, Swing, C++, MATLAB, Oracle, Perst (embedded database), Git, CVS.

Aug 2007 – Dec 2007 **Teaching Assistant**, University of Connecticut, Storrs, CT.

- Instructed weekly lab activity for a sophomore-level course on object oriented design.
- Tutored undergraduate students in areas related to computer science and mathematics.

Education

2009 **MS - Computer Science & Engineering**, *University of Connecticut*.

2007 **BS - Computer Science** , *University of Connecticut*, (Minor in Mathematics).

Programming Tools & Practices

Version Control:	Git, Mercurial, Subversion, CVS
Programming Languages:	C/C++, Clojure, Go, Java, Javascript, Python, Scala, SQL et cetera
Database Systems:	MS SQL Server, MySQL, Oracle, SQLite, Cassandra
Web Technologies:	AJAX, REST, Websockets
Other Technologies:	Kafka, Zookeeper, Spark
Engineering Practices:	Agile, SCRUM, Continuous Integration, Test-Driven Development

I am probably omitting something of interest. Ask me about your favorite tool or practice.

Publications

Short-term Load Forecasting: Similar Day-Based Wavelet Neural Networks (Y. Chen, P. B. Luh, Y. Zhao, L. D. Michel, M. A. Coolbeth, P. B. Friedland, & S. J. Rourke) *In IEEE Transactions on Power Systems, volume 25, 2010*.

Very Short-term Load Forecasting: Multilevel Wavelet Neural Networks with Data Pre-filtering (C. Guan, P. B. Luh, L. D. Michel, M. A. Coolbeth, Y. Zhao, Y. Chen, C. J. Manville, P. B. Friedland, & S. J. Rourke) *In Proceedings of the 2009 PESGM, 2009*.

Data Collection with Multiple Sinks in Wireless Sensor Networks (S. Chen, M. Coolbeth, H. Dinh, Y. A. Kim, & B. Wang) *In Proceedings of the 2009 conference on Wireless Algorithms, Systems, and Applications, 2009*.