David McWhorter

Software Engineer

Charlottesville, Virginia

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About

Passionate creator of software that harnesses data to heal the world.

Experience

Domino Data Lab

May 2022 - Present

Staff Software Engineer

https://www.dominodatalab.com

Domino Data Lab is a startup where I create software to help data scientists create, train, monitor, and publish machine learning models.

Premier, Inc.

March 2015 - May 2022

Software Architect

https://www.premierinc.com

Premier is a healthcare informatics company where I created software to help hospital systems lower costs and improve outcomes of care.

Software Engineering

• Developed Service Line Analytics, an application for analyzing utilization and cost of surgical supplies and drugs as well as clinical outcomes.
• Developed Cohort Builder, an application allowing users to create patient cohorts for data analytics.
• Designed and implemented data ingest, transformation and indexing components.
• Designed and implemented user-facing web services and UI components.
• Designed and implemented data analytics components using appropriate algorithms and technologies.
• Designed and implemented infrastructure components including server administration and distributed computing frameworks.
• Built software tools to support operations staff.

Technical Leadership

• Built an engaged, transparent, innovative and helpful engineering team culture.
• Supported others on the team with technical input and direction on a daily basis.
• Asked pointed questions and contributed to discussions to clarify, challenge and refine product requirements and strategy.

• Provided critical but constructive feedback and contributions to other teams, staff members, and the broader organization.
• Promoted from Sr. Software Engineer to Staff Software Engineer, then again to Software Architect.

Data Science
• Contributed to the design and implementation of an on the fly retrospective pair-matched patient comparison tool to allow users to analyze the effect of a single variable on patient outcomes while holding other variables nearly constant.
• Developed foundational components (e.g. cohort creation) of a larger data analytics framework.

Commonwealth Computer Research, Inc.
October 2008 - March 2015

Sr. Software Engineer

https://www.ccri.com

CCRI is a data mining and predictive analytics company where I created software to predict crime and other events using geospatial and temporal predictors.

Software Engineering
• Developed operational and research software for the Army and Navy to model enemy learning using geospatial data to predict the time and location of future events.
• Designed and architected the Simple Warning Instant Forecasting Tool (SWIFT), a geospatial predictive analysis tool for small units with limited computing resources.
• Combined SWIFT with a similar application to form one predictive analysis platform capable of running in a multi-node cloud environment or single-node standalone environment.
• Designed, tested, and oversaw development of an Android-based mobile application.
• Contributed to GeoMesa, an open source spatio-temporal index for Accumulo.
• Developed a JavaScript-based user interface to present predictions to analysts.
• Extracted common methods and algorithms into internal libraries for use across projects.
• Setup and maintained infrastructure such as continuous integration servers.

Technical Leadership
• Oversaw a team of three to ten engineers using an agile sprint-based approach.
• Trained and developed engineers on my team.
• Delivered formal performance reviews.
• Interviewed full-time and internship applicants.
• Defined requirements with customers.
• Worked with internal projects to minimize overlap and align our vision.
• Wrote successful proposals for new contracts.
• Regularly demonstrated new capabilities at scheduled operational evaluations.
• Promoted from Software Engineer to Sr. Software Engineer.

Data Science
• Compared new predictive analysis techniques with standard libraries and internal algorithms.
• Utilized generalized linear models, random forests, and kernel density estimation.

Science Applications International Corporation
October 2007 - October 2008

Software Application Engineer

https://www.saic.com

SAIC is a government contractor where I created software to securely and intuitively search textual reports.

• Designed and implemented text search tools.
• Improved a Microsoft .NET client interface for accessing search tools through web services.
• Adapted an existing application to a dual security domain environment, routing communication through a protected server and enabling queries using row level security.
• Designed and prototyped a search product combining functionality from three existing tools into one modular, extensible application.

Nonprofit Organization
August 2006 - August 2007

Regional I.T. Director and Web Developer

• Served as Regional I.T. Director during the six month absence of the permanent director.
• Led the installation, training, and auditing of security software.
• Developed a website for staff information and a web application for submitting reimbursements.

Image Matters, LLC
May 2004 - January 2005

Java Software Development Intern

https://www.imagemattersllc.com

Education

University of Virginia
2001 - 2005

Bachelor's Degree

Computer Engineering and Computer Science

GPA: 3.76

Additional Courses

Statistics (Piedmont Virginia Community College, 2010)
Linear Statistical Models (University of Virginia, 2011, Unofficial Audit)
Functional Programming Principles in Scala (École Polytechnique Fédérale de Lausanne, 2012)
Principles of Reactive Programming (École Polytechnique Fédérale de Lausanne, 2013-2014)
Cloud Computing Applications (University of Illinois at Urbana-Champaign, 2015)

Projects

GeoMesa Contributions

https://github.com/locationtech/geomesa/commits?author=dmcwhorter

GeoMesa is a spatio-temporal index for distributed databases

Undergraduate Thesis

https://www.mcwhorter.io/DavidMcWhorterThesis05.pdf

Power Consumption Characterization of a Graphics Processing Unit

Professional Website & Resume

https://github.com/dmcwhorter/resume

My professional website and resume built using open source packages

Spark Contributions

https://github.com/apache/spark/commits?author=dmcwhorter

Apache Spark is a distributed computing platform

Skills

Programming Languages

Java | Scala | Groovy | R | JavaScript | TypeScript | HTML/CSS | shell scripting | Python | SQL

Java Technologies

DropWizard | Spring | Jackson | Java EE/EJB | JPA/Hibernate | Akka | JSP | JBoss | Tomcat | Jetty | Android

Distributed Computing

Apache Spark | Hadoop | YARN/MapReduce | Oozie | Storm | Kafka

Infrastructure

Apache Mesos | Puppet | Nginx | Apache | Kubernetes | Docker | Apache Airflow

Databases

MySQL | PostgreSQL/PostGIS | Oracle/Oracle Spatial | Accumulo | Impala | Hive | Teradata | Neteeza

Web

React | Bootstrap | XML | JSON | REST/SOAP Web Services | ExtJS | OWL/RDF | JMS/ActiveMQ | NetCDF

Geospatial

GeoTools/GeoServer | OpenLayers | Quantum GIS | GDAL | GeoMesa

Development Tools

Git | JIRA/Confluence | IntelliJ IDEA | Netbeans | Maven | Subversion | Ant | Vim | VS Code

Languages

English — *Native speaker*

Chinese — *Basic conversation*

Interests

Running | Electrical Wiring