Brian Duggan System Architect and Engineer

bduggan@matatu.org • bd.matatu.org

Summary

Proven track record designing, building and maintaining mission-critical applications. Over 25 years writing software in a variety of languages, focusing on Perl, C, Python and Ruby. Strong leadership, managerial and communication skills. Ability to work independently or in groups, on-site or remotely. Solid understanding and engagement in all aspects of the project life cycle, including theory, process, design, implementation, and operations. Experience with API design, test driven

development, agile and waterfall methodologies, and both front and back-end design and implementation. Strong familiarity with Unix. Master's degree, academic publications and presentations in mathematics and computer science. Open source software author and frequent contributor. Proficient in German, Italian, and Swahili.

Experience

PromptWorks

System Architect and Engineer

Technical lead on multiple projects for various clients. Worked with a Fortune 500 company to implement infrastructure as a service (OpenStack, Python). Worked with a startup to model health insurance expenditures and provide a high-availability API used by health exchanges and multiple companies with hundreds of thousands of employees (Python, AWS, Apache Spark, Perl 6). Presented at multiple domestic and international conferences including FOSDEM 2017, TPCiA, YAPC::NA. Wrote and released much open source software, including: Log::Async, Digest::SHA1::Native, Digest::SHA256::Native, OAuth2::Client::Google, aws-secrets

University Corporation for Atmospheric Research

System Architect and Engineer

Responsible for the implementation and deployment of the Global Change Information System (data.globalchange.gov), a source of authoritative information about climate change. The system provides information management and back-end services for the highly publicized National Climate Assessment. Responsible for the initial release of a high profile system that received and continues to receive mainstream news coverage (including for instance by the NY Times, BBC, and CNN).

Worked under the US Global Change Research Program, a confederation of the research arms of 13 federal agencies overseen by the White House Office of Science and Technology Policy. Oversaw the architecture and implementation of all aspects of the system, including RESTful API design, relational and semantic information models. Author and co-author of multiple publications relating the system design to practices in Linked Data. Part of a distributed team working in multiple locations across the U.S.

Technologies: Perl, Mojolicious, PostgreSQL, Virtuoso, Linked Data Authored: Gcis

Adnet Systems (under contract to NASA's Goddard Space Flight Center)

Principle Scientific Programmer

Led a team of five programmers in the Earth Sciences division of the National Aeronautics and Space Administration, building the Atmospheric Composition Processing System, a scientific data processing system which produces near-real-time and delayed data products representing continuous daily global coverage of several chemical constituents of the earth's atmosphere. The data originates in the Ozone Monitoring Instrument (OMI) on the Aura spacecraft and in the Ozone Mapping and Profiler Suite on the Joint Polar Satellite System.

Technologies: Distributed system, PostgreSQL, Redis, nginx, SQLite, Mojolicious Authored:Clustericious, Yars

Democratic National Committee

Software Engineer

Designed and implemented a system for processing donations to the DNC for the 2008 presidential election. The DNC received over 250 million dollars in contributions, most of which came in low dollar contributions. All the donations came through a central system for recording, vetting, analyzing, and reporting to the Federal Election Commission. The system was used to ensure legal compliance with campaign finance laws, manage data about several million donors, vet donors for high-dollar events,

GREENBELT, MD Nov '08 – Mar '13

WASHINGTON, DC Apr '13 – Oct '14

Philadelphia, PA

Oct '14 – Present

WASHINGTON, DC

2006 - 2008

| Bachelor of Arts: Mathematics/Computer Science and Literatu | re/Writing 1989-1994 |
|---|---|
| Master of Arts: Mathematics University of California at San Diego San Diego, CA | 1994-1996 |
| San Diego, CA | |
| Education | |
| | |
| Worked on the SDSC Image Tools, an 8-year NSF-funded conversion. Wrote code in C on various platforms includir and Dec Alpha. Technologies: C Authored: SDSC Image Tools | project for image manipulation and format ng Cray, Sun, Intel Paragon, Silicon Graphics, |
| San Diego Supercomputer Center C Programmer | San Diego, CA 1994 – 1995 |
| US Peace Corps Volunteer Taught mathematics in a rural Kenyan high school. Desig programming at Maseno University, Kenya. | Maseno, Kenya 1996 – 1998 ned and conducted lectures on advanced C |
| Oven Digital System Engineer Responsible for backends for web sites and web application Technologies: Apache, mod_perl Authored: mod-auth-shadow | New York, NY 1999-2002 ons for multiple clients. |
| SeniorBridge Family System Engineer Principal engineer for patient and accounts management in-home medical care. Integrated a custom front-end wi an instance of Deltek Timesheet and Payroll Managemen months. Technologies: Oracle, Perl, mod_perl, Template::Toolkit Authored: Text::SpellChecker | New York, NY 2002 – 2006 system used for monitoring and delivering th a backend Oracle database connected to t software. Telecommuted from Italy for 18 |
| and coordinate handling of incoming money between th departments at the DNC. Technologies: HTML::Mason, XML::Comma, mod_perl Authored: Class::DBI::Audit | e accounting, marketing, finance, and legal |

Selected publications

Perl 6: Superglue for the 21st Century, The Perl Conference: Europe, Amsterdam, Holland, August 2017

Perl 6 Metaprogramming for Command Line Applications, The Perl Conference: North America, Washington, DC, June 2017

Informal Domain Specific Languages in Perl 6, FOSDEM, Brussels, Belgium, February 2017

Utiaji; Building an Application Specific Web Server in Perl 6, The Perl Conference, Orlando, FL, June 2016

Normalizing Resource Identifiers using Lexicons in the Global Change Information System, Linked Data on the Web Workshop at the 24th International World Wide Web Conference, Florence, Italy, May 2015, ISSN 1613-0073, Vol 1409

Adaptable Information Models in the Global Change Information System (invited), American Geophysical Union Fall Meeting December 2014, San Francisco, CA

A RESTful Service Oriented Architecture for Science Data Processing, American Geophysical Union Fall Meeting December 2012, San Francisco, CA

REST Driven Data Processing in the Atmospheric Composition Processing System, Poster Session : Earth Science Data Systems Working Group Newport News, VA, November 2, 2011

Maintaining Scalable Local Data Repositories with Data::Downloader, Poster Session: OMI Science Team Meeting, Utrecht, Netherlands, June 15, 2010 Talk and Poster Session: Earth Science Information Partners Federation Meeting Knoxville, TN, July 22, 2010

OMI Near Real Time Data Processing), Durbin, P., Tilmes, C, Duggan B., Das, B., 2010 IEEE International Geoscience and Remote Sensing Symposium ISBN: 978-1-4244-9565-8, doi:10.1109/igarss.2010.5651380 Honolulu, HI, July 26, 2010

Virtual Pivot Tables in SQLite, OpenSQLCamp, November 2009, Portland, OR

Links

More links to my publications, talks, and software can be found at bd.matatu.org.