

Christopher S. Meiklejohn
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PROFILE Functional programmer, distributed systems researcher, conference speaker, and open source contributor.

INTERESTS *Conflict-Free Replicated Data Types (CRDTs)*
Applications of CRDTs in distributed systems, specifically partitioned and replicated computation in large-scale systems.

Distributed Computing
Efficient distributed computation in mobile and desktop applications supporting of-line operation that preserve the correctness properties of applications.

Education
Instruction of distributed systems topics.

PUBLICATIONS Meiklejohn, C. (2016)
Declarative, Secure, Convergent Edge Computation
Off the Beaten Track '16 (OBT '16)
Collocated with POPL '16; January 20-22, 2016; St. Petersburg, Florida, United States

Meiklejohn, C., Haeri, S., and Van Roy, P. (2016)
Declarative, Sliding Window Aggregations for Computations at the Edge
1st International Workshop on Edge Computing (EdgeCom '16)
Collocated with CCNC '16; January 9-12, 2016; Las Vegas, Nevada, United States

Meiklejohn, C., and Van Roy, P. (2015)
Selective Hearing: An Approach To Distributed, Eventually Consistent, Edge Computation
Workshop on Planetary-Scale Distributed Systems (W-PSDS '15)
Collocated with SRDS '15; September 28, 2015; Montreal, Quebec, Canada

Meiklejohn, C., and Van Roy, P. (2015)
The Implementation and Use of a Generic Dataflow Behaviour in Erlang
In the Proceedings of the Fourteenth ACM SIGPLAN workshop on Erlang (Erlang '15)
Collocated with ICFP '15; September 4, 2015; Vancouver, British Columbia, Canada

Meiklejohn, C., and Van Roy, P. (2015)
Lasp: A Language for Distributed, Coordination-Free Programming
In the Proceedings of the 17th International Symposium on Principles and Practice of Declarative Programming (PPDP '15)
Collocated with LOPSTR 2015; July 14th, 2015; Siena, IT

Meiklejohn, C., and Van Roy, P. (2015)
Lasp: a language for distributed, eventually consistent computations with CRDTs
In Proceedings of the First Workshop on Principles and Practice of Consistency for Distributed Data (PaPoC '15)
Collocated with EuroSys '15; April 21, 2015; Bordeaux, FR

Meiklejohn, C. (2014)
Augmented Inverted Indexes to Track Causality in Eventually Consistent Data Stores
Middleware '14 Poster Session
December 8-12 2014; Bordeaux, FR

Meiklejohn, C. (2014)
Eventual Consistency and Deterministic Dataflow Programming
A Case Study of Integrating Derflow with the Riak Data Store.
LADIS '14: 8th Workshop on Large-Scale Distributed Systems and Middleware
October 23-24, 2014; Cambridge, UK

Bravo, M., Li, Z., Van Roy, P., and Meiklejohn, C. (2014)
Derflow: distributed deterministic dataflow programming for erlang
In Proceedings of the Thirteenth ACM SIGPLAN workshop on Erlang (Erlang '14)
Collocated with ICFP '14; September 5, 2014; Goteborg, Sweden

Brown, R., Cribbs, S., Meiklejohn, C., Elliott, S. (2014)
Riak DT map: a composable, convergent replicated dictionary.
In Proceedings of the First Workshop on Principles and Practice of Eventual Consistency (PaPEC '14)
Collocated with EuroSys '14; April 13, 2014; Amsterdam, NL

Meiklejohn, C. (2014)
On the composability of the Riak DT map:
Expanding from embedded to multi-key structures.
In Proceedings of the First Workshop on Principles and Practice of Eventual Consistency (PaPEC '14)
Collocated with EuroSys '14; April 13, 2014; Amsterdam, NL

Meiklejohn, C., (2013)
Riak PG: Distributed Process Groups on Dynamo-style Distributed Storage
In Proceedings of the twelfth ACM SIGPLAN workshop on Erlang (Erlang '13)
Collocated with ICFP '13; September 28, 2013; Boston, MA

EDUCATION *Graduate Coursework, Computer Science* 2013
Brown University, Providence, RI
One semester of coursework completed.

Bachelor of Science, Information Technology 2006 - 2009
Northeastern University, Boston, MA,
G.P.A. 3.75/4.0, Summa Cum Laude, Sigma Epsilon Rho Honor Society Member

Associate of Science, Computer Science 2001 - 2006
Community College of Rhode Island, Warwick, RI

TALKS / *A Brief History of Chain Replication*
ARTICLES QCon 2015; San Francisco, CA

Declarative, Distributed, Edge Computation
RICON 2015; San Francisco, CA

Coordination-Free Designs for Mobile Gaming
Code Mesh 2015; London, UK

Distributed, Eventually Consistent Computations
Strange Loop 2015; St. Louis, MO

Coordination-Free Computations
GOTO Chicago 2015; Chicago, IL

Lasp: Distributed, Eventually Consistent Computations
PaPoC 2015, co-located with EuroSys 2015; Bordeaux, FR

Distributed Eventually Consistent Computations
Erlang Factory 2015; San Francisco, CA

Highly Distributed Computations Without Synchronization
InfoQ, February 17th, 2015

Functional Web Apps with Webmachine
BOBkonf 2015; Berlin, Germany

Introduction to Riak
BOBkonf 2015; Berlin, Germany

Building Applications with Distributed Erlang
NDC London 2014; London, United Kingdom

Eventually Consistent Computations
ReactConf 2014; San Francisco, CA

Eventually Consistent Computation with CRDTs
RICON 2014; Las Vegas, NV

SyncFree: Large-Scale Computation Without Synchronization
RICON 2014; Las Vegas, NV

Eventual Consistency and Deterministic Dataflow Programming
LADIS Workshop '14; Cambridge, UK

“A Note On Distributed Computing” (1994)
Papers We Love 2014; Boston, MA

Derflow: Distributed Deterministic Dataflow Programming
ACM SIGPLAN Erlang Workshop 2014; Gothenburg, Sweden

Distributed deterministic dataflow programming for Erlang
Erlang User Conference 2014; Stockholm, Sweden

Convergent / Divergent
EmberConf 2014; Portland, OR

*On The Composability of the Riak DT Map:
Expanding From Embedded To Multi-Key Structures*
PaPEC 2014, co-located with EuroSys 2014; Amsterdam, NL

Verified Vector Clocks: An Unexpected Journey
Erlang Factory 2014, San Francisco; San Francisco, CA

Verified Vector Clocks
RICON West 2013; San Francisco, CA

Riak PG: Distributed Process Groups on Dynamo-style Distributed Storage
ACM SIGPLAN Erlang Workshop 2013; Boston, MA

Choose Your Own Consistency
Toronto Erlang Factory Lite 2013; Toronto, ON

Bloom: A Language For Disorderly Distributed Computing
Wicked Good Ruby 2013; Boston, MA

What Even Is An Erlang?
Wicked Good Ruby 2013 Lightning Talk; Boston, MA

Functional Web Apps with Webmachine
LambdaJam 2013; Chicago, IL

Implementing a Distributed Process Registry on Riak Core
New York Erlang Factory Lite 2013; New York, NY

From Ruby to Erlang: An Unexpected Journey
Chicago Erlang Factory Lite 2013; Chicago, IL

An Introduction to Functional Reactive Programming
NodePDX 2013; Portland, OR

Distributed Data Structures in Coq
RICON East 2013; New York, NY

Building Ambitious Web Applications with Ember.JS
FITC 2012; Waltham, MA

AWARDS

Academic Excellence Award, Northeastern University, 2009
Awarded to students with the highest grade point average in their field of study.

BRASS Award, Berklee College of Music, 2008
Awarded to outstanding employees during the fiscal year.

Zero Hero Award, Conversent Communication, 2006
Awarded to employees for zero customer loss.

EXPERIENCE

Senior Software Engineer, Core Platform August 2015 - January 2016
Machine Zone, Inc., San Francisco, CA

- Responsible for the design and formal verification of replication protocols.

Senior Software Engineer March 2012 - August 2015
Basho Technologies, Inc., Cambridge, MA

- Responsible for research on CRDTs under our partnership with SyncFree.

- Worked on Basho's replicated data center product, optimizing performance and reliability of multi-datacenter replication.
- Responsible for building out an application to manage usage of a half-petabyte object store using Ruby, JavaScript and D3.
- Developed closed-source web utilities for managing access to product trials.
- Implemented open-source client libraries for Riak CS in Ruby and Erlang.

Contributor and Maintainer July 2011 - December 2015
 Rubygems.org (Community-hosted Ruby packages)

- Assisted in maintenance and development of the rubygems.org platform.

Software Engineer November 2010 - March 2012
 Swipely, Inc., Providence, RI

- Responsible for developing the Swipely platform, which is written in Rails 3 using RDS, MongoDB and Riak.
- Created a dynamic newsfeed based on purchasing history of customers, that prioritized scheduling based on purchase history and frequency.
- Introduced team to pair programming, test and behavior driven development.
- Contributed patches to Rails core, and various open source libraries.
- Took the lead on migrating our infrastructure from Rails 2.3.4 to Rails 3.0+.

Volunteer Systems Administrator May 2010 - March 2012
 Devio.us (Free OpenBSD Shell Provider)

- Assisted in all operational upgrades of Devio.us systems and user management.

Lead Software Developer February 2010 - July 2010
 Tapchamp, LLC.

- Developed Rails-based fantasy play prediction system, which included Facebook integration and mobile API for iPhone application.
- Deployed and managed all servers responsible for platform.

South End Community Health Center, Boston, MA 2010

- Working with a designer to build English and Spanish versions of their website.

Coevolution Interactive, Boston, MA 2009 - 2010

- Provided e-commerce and web development work for various clients.

Crunchy Granola Baby, LLC., Salem, MA 2008 - 2009

- Designed and implemented e-commerce solution for their online store.

Web Programmer and Systems Administrator August 2008 - February 2009
 Artists House Music, New Orleans, LA

- Designed and implemented custom solutions to support marketing initiatives.
- Provided systems support to staff, as well as general systems administration services.

Software Engineering Manager and Systems Engineer April 2008 - October 2010
 Berklee College of Music, Boston, MA

- Managed software development for the Berklee Media business division.
- Responsible for ensuring 24/7 uptime of all systems, rapid response to critical issues and delivering custom software products.
- Worked with the CTO and the Software Engineering Managers from other divisions to ensure applications are being developed following the proper standards.

- Configured and maintained hardware at two data center facilities as well as provisioned a disaster recovery site.

Software Developer and Systems Engineer July 2006 - April 2008
 Berklee College of Music, Boston, MA

- Developed for, and supported, custom AOLServer/OpenACS installations.
- Designed and supported web solutions using PHP, TCL, XML/XPATH, and Smarty.
- Provided 24/7 support for web services.

Senior Systems Engineer January 2005 - July 2006
 Conversent Communications, Lincoln, RI

- Designed and implemented high availability solutions for e-mail and web systems.
- Implemented a multi-server LDAP infrastructure.
- Worked in their data center to provide installation and support for customers.
- Designed and deployed an auto-provisioning system to integrate with their OSS.
- Designed database-driven systems for tracking data center customers and billing burstable bandwidth customers.

Systems Engineer January 2000 - January 2005
 Conversent Communications, Warwick, RI

- Worked in a small team to develop, maintain and deploy low-cost solutions for data products.
- Deployed Linux, Solaris, Windows and FreeBSD based systems.
- Designed database-driven web-based solutions for customer management in Perl, Java, and PHP.

Technical Support/Customer Service August 1998 - June 2000
 IDS World Network, East Greenwich, RI

- Provided technical support and customer service via telephone, e-mail and newsgroup for customers.

COMMUNITY

Program Committees

Participated in program committees.

- Member of the ACM SIGPLAN Erlang Workshop 2015 PC.
- Member of the ACM DEBS 2015 Industry PC.
- Member of the ACM EuroSys 2014 shadow PC.

Events and User Groups

Assisted in the organization of several commercially and community supported events and user groups.

- Co-organized Curry On Prague! 2015.
- Attended the 2013 Oregon Programming Languages Summer School.
- Organized DowncityJS, a hackathon in Providence, RI.
- Assisted in organizing the RICON conference for the past three years.
- Functional Programmers; Providence, RI
- Ember.JS; Boston, MA

Think Distributed

Creator and host of the Think Distributed podcast, focusing on making distributed systems understandable.

- Hosted episodes featuring various researchers and practitioners.
- Held live panel discussions at Strange Loop 2013 and RICON 2013/2014.

SyncFree Consortium

Contributing member and industry partner of the SyncFree research project on large-scale synchronization-free computation funded by the European Union under the Seventh Framework Programme.

- Worked with Universite catholique de Louvain on building a programming model for working with eventual consistency.
- Assisted in the development and testing of the projects reference platform.
- Built out testing infrastructure for the reference platform for repeatable executions of test code and use case simulation.