Reza Lotun

London, United Kingdom
http://twitter.com/rlotun

+44 7521 310 763
rlotun@gmail.com
http://reza.lotun.name
Citizenship: Dual Canadian and British

Skills

Technology/Area	Context
Programming Languages	Python in server-side and desktop software for work, research and personal projects. Have made open source contributions to major projects. Some frontend experience using HTML/CSS and Javascript using JQuery. Knowledge of C and Matlab in a research environment.
Network Development	Asynchronous network libraries like Twisted, and web MVC devlopment using Django. Extensive design and implementation experience with HTTP and REST APIs, as well as interfacing with third-party APIs for services like Twitter, Facebook, and Foursquare. Experience in interfacing with OAuth and its variants.
Cloud Computing	Amazon AWS (EC2, Elastic Load Balancing, Autoscale, SimpleDB, S3, RDS, Elastic MapReduce) and Google AppEngine (Mail services, Task Queues, Bulk Loading to Datastore)
Operations	Deployed webservers with Nginx and Apache, wrote automated deployment scripts in Fabric
Data Analysis	Large scale analysis of user data using Hadoop Pig and R

Work Experience

- **TweetDeck Inc.** (tweetdeck.com) — London, UK
  Head of Infrastructure — *May 2009 - Present*
  - Designed and implemented the TweetDeck RESTful API in Python and hosted on Amazon EC2 with Elastic Load Balancing and Autoscaling enabled. This allowed for scaling resources up or down based on the traffic demands of millions of desktop and mobile clients. Components of the API included application servers written in Twisted, a distributed task queue implemented over Celery and RabbitMQ, and a storage backend using Amazon SimpleDB.
  - Implemented the backend of the TweetDeck website and TweetDeck Directory using Django and MySQL on Amazon RDS, hosted on load balanced EC2.
  - Created TweetDeck's analytics system - allowing for non-pervasive tracking of various client actions. Implemented the complete backend - data collection using Nginx, storage using S3, real-time analysis and display using Redis and Orbited for an internal Comet-style web dashboard, and a mix of custom and Hadoop Pig scripts for deeper data analysis.
  - Managed deployments using custom tools written in Fabric, allowing for easy and fully automatic deployments of client software, and API and web pushes.
  - Built internal tools and systems including social network crawlers and backend libraries for accessing Twitter, Facebook, Foursquare and other services and internal status monitors.
  - Managed the build process for desktop and mobile clients using Buildbot. Also managed source control, initially hosting all company source code on Mercurial and eventually moving everything to Git on GitHub.

- **Peer Technologies Limited (`www.getpeer.com`)** London, UK
  Senior Software Engineer *March. 2008 - May. 2009*
  - This company was acquired by TweetDeck Inc.
  - Main produce a Windows XP/Vista and Mac OS X Leopard desktop application and backend service for sharing web search data in small work groups
  - Architected and implemented a 10K LOC service backend using Twisted on Amazon's Elastic Compute Cloud (EC2), with user account storage on SimpleDB, and mass data storage on Amazon S3.
  - Implemented product cryptographic layer - applied 2048-bit RSA, AES-256 CTR and SHA-256 (using PyCrypto), SSL and Blowfish password hashing for secure communication, data storage and account credentials.
  - Designed and implemented multi-threaded client architecture, with threads for the network, wx GUI and database event loops, and general thread pool. Implemented support tools to schedule calls between threads, as well as spawning proceses.
  - Set up company development environment, with trac for bug tracking, buildbot for continuous builds, nose for unittests, figleaf for test coverage, and Review Board for code review management.
  - Interviewed candidates and managed two junior developers
- **worio.com** Vancouver, BC
  Software Engineer *Sep. 2005 - Sept. 2006*
  - One of three initial software engineers at a web search engine startup
  - As part of a distributed search engine, designed and implemented in Python a multi-threaded, modular web document metadata processing and feature extracting subsystem capable of handling 30+ web documents per second in various formats. The system analyzed factors such as character encoding, source language type, link and XHTML markup structure, and word features, pushing updates to various other subsystems
  - Acquisition and physical installation of 12-node rack-mounted cluster. Oversaw installation and customization of operating system and deployment of our software onto the cluster.
  - Created company's development process - wrote coding convention document, set up trac management interface, and structured repository.

Education

- **University of British Columbia** Vancouver, BC, Canada
  M.Sc. *Computer Science* *Sep. 2004 - Feb. 2008*
  - `Supervisor`: Prof. Mike Feeley, Distributed Systems Group
  - `Thesis`: Online statistical processing of wireless packet data to detect patterns of interference.
  - `Coursework`: Machine Learning, Game Theory, Complexity, Bioinformatics
- **University of Toronto, Trinity College** Toronto, ON, Canada
  Hon.B.Sc. *Computer Science, Mathematics* *Sep. 2000 - Apr. 2004*

Articles and Research Publications

Guest post for AppEngine Blog: **TweetDeck and AppEngine: A Match Made in the Cloud**
`http://googleappengine.blogspot.com/2010/04/tweetdeck-and-google-app-engine-match.html`

K. Cai, R. Lotun, M. Blackstock, M. Feeley **Wireless Unfairness Can Be Eliminated With a Wired Router, But It's Hard** *Ninth Workshop on Mobile Computing Systems and Applications (HotMobile 2008)* February 2008.

R. Lotun, K. Cai, M. Feeley. **Dynamic Clustering of Interference Domains on Large Scale 802.11 Networks** *Poster in the Workshop on Statistical Learning Techniques for Solving Systems Problems at NIPS 2007* December 2007.

K. Cai, M. Blackstock, R. Lotun, M. Feeley, C. Krasic, J. Wang. **Wireless Unfairness: Alleviate MAC Congestion First!** *The Second ACM International Workshop on Wireless Network Testbeds, Experimental evaluation and CHaracterization (WiNTECH 2007) in conjunction with ACM MobiCom 2007*, pp. 43-50. Montreal, Canada, September 2007.

K. Cai, M. Blackstock, R. Lotun, M. Feeley, C. Krasic. **Toward Fair Wireless Experience in Large 802.11 Networks Using Real-time Traffic Shapers.** *Poster in the Eighth IEEE Workshop on Mobile Computing Systems and Applications (HotMobile).* Tucson, February 2007.

Open Source Contributions and Projects

- **Boto** `http://code.google.com/p/boto/`
  Commit Access
  - Commit access to boto project - the main Python library from Amazon AWS. Implemented autoscale support and various bugfixes.
- **Celery** `http://celeryproject.org/`
  Contributor
  - Contributed various patches through my GitHub fork.
- **Various** `http://github.com/rlotun`
  Code Page
  - See all my other open source projects on my GitHub page.
- **CPSC545 - Algorithms for Bioinformatics** Vancouver, BC
  Graduate Course Project *Sep. 2004 - Dec. 2004*
  - In a team of two, implemented in Matlab an iterative protein design algorithm which performed a stochastic local search through the space of 2D HP Protein configurations, represented as self avoiding walks. See:
    `http://www.cs.ubc.ca/labs/beta/Div/CPSC545-WS-05/`

Teaching Experience

- **University of British Columbia** Vancouver, BC
  Teaching Assistant, Computer Science *Sep. 2004 - May 2007*
  - Two semesters of CPSC 221, *"Basic Algorithms and Data Structures"*, which taught a mix of discrete mathematics, algorithm analysis and programming in C++. Led three 2 hour combined tutorial/lab sessions per week, comprised of one hour presentation of additional class materials in a lecture format, and one hour of computer lab supervision. Also graded midterms and exams.
  - Two semesters of CPSC 213, *"Introduction to Computer Systems"*, a course introducing C, Unix file I/O, threading, and sockets. Led three 3 hour tutorial/lab sessions per week. Graded midterms, quizzes and exams.

Awards

Trinity College Academic Award (2003): Achieving a GPA of 3.8 for the duration of 3^{rd} undergraduate year ($300 value)

Ontario Scholar (2000): Province-wide award for achieving cumulative average of 93% in *Ontario Academic Credit (OAC)* courses.