

Elliot Barlas

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Summary

I'm a generalist software engineer specializing in backend Java web applications deployed in AWS Cloud with an emphasis on customer identity, authentication, and administration. I regard myself as a thoughtful and deliberate developer that seeks simple and scalable solutions to problems. I have a record of stewarding and evolving software systems over the course of many years while maintaining high quality code and employing modern techniques. I am responsible for the full spectrum of software lifecycle stages, from specification and design to deployment, monitoring, and maintenance. I empower my colleagues by providing tools, libraries, and frameworks and by cultivating an atmosphere of growth, learning, and collaboration. I enjoy a range of programming activities including C++ game programming, Raspberry Pi actuator programming, mobile development, and server development. I also enjoy teaching computer programming topics to newcomers as a volunteer at the local CoderDojo chapter and at Santa Rosa Junior College.

Skills

The following technologies represent my current proficiencies, though my curiosity extends way beyond items listed. The asterisk (*) denotes a modest level of experience.

- Languages: Java, Python, C++, C, JavaScript*, Groovy*, Clojure*
- Databases: Oracle, MySQL, Amazon Aurora MySQL, DynamoDB, Cassandra, Redis, Elasticsearch*
- AWS: DynamoDB, S3, SNS, SQS, EC2, ECS, ELB, ASG, RDS, KMS, Lambda, Kinesis, CloudFront, CloudFormation, CloudWatch, Route53

Experience

Citrix, LogMeIn

In February 2017, the GoTo online services division within Citrix spun off and merged with LogMeIn.

Positions Held

July 2007 - Present

- Principal Software Engineer, LogMeIn - February 2017 - Present
- Principal Software Engineer, Citrix - April 2015 - February 2017
- Staff Software Engineer, Citrix - April 2011 - April 2015
- Senior Software Engineer, Citrix - January 2010 - April 2011
- Software Engineer, Citrix - July 2007 - December 2009

Contributions

The following projects are among the most significant during my time at Citrix and LogMeIn. As the lead engineer for the projects below, I am responsible for design, implementation, testing, deployments, maintenance, monitoring, alerts, escalations, documentation, and client libraries.

- Identity platform team tech lead
 - Design and implement build and deployment pipelines
 - Govern AWS system architecture
 - Establish standard coding conventions and testing methodologies
 - Create tools and libraries for developers
 - Organize study groups for learning new topics
 - Identify technical conferences and community events
- Customer identity system
 - Distributed web application deployed in AWS Cloud backed by Aurora MySQL database
 - On critical path for nearly all customer interactions with products
 - Implements data residency
 - Spans 3 AWS regions

- Billions of database records stored
- 10s of thousands of API requests per second
- 100s of thousands of database queries per second
- Message queuing system
 - Distributed web application that provides remote network queue capability
 - TBs of data ingested per day
 - Billions of discrete messages ingested per day
 - 10s of thousands of API requests per second
 - 100s of thousands of journal ops per second
- GDPR compliance data pipeline
 - Mesh of interconnected AWS Lambda Functions and databases that implement GDPR compliance
 - Event driven data pipeline using DynamoDB streams and Kinesis streams
 - Sends events to internal product systems for purging product-specific data
 - Notifies customers directly about impending identity records removal
 - Purges identity records for inactive customers
- Screen-sharing session placement system
 - Distributed web application that assigns screen-sharing multicast responsibility to specific communication server
 - On critical path for all new Meeting, Webinar, and Training sessions
 - Session assignment occurs over pool of 100s of geographically distributed communication servers
 - Custom assignment and load balancing algorithm that prioritizes proximity while minimizing server load
- Social graph search system
 - Users and relationships organized into a graph modelled in Cassandra database
 - Custom indexes, described with scripting language, define proximity in terms of relationships
 - Tailored for fast typeahead search
 - Event driven implementation with asynchronous programming model
 - Powers GoToMeeting contact search

Education

Masters of Science (M.S.), Computer Science

University of California, Santa Barbara
2006-2007

Bachelors of Science (B.S.), Computer Science

University of California, Santa Barbara
2002-2006

Projects

I've kept up a steady stream of side projects over the last few years in an effort to explore new unfamiliar areas such as Raspberry Pi actuator programming, Android development, and C++ game programming. More details are available in the associated GitHub repositories.

- Trippin on Tubs - 2D side-scrolling platformer game implemented in C++ targeting multiple platforms, including iOS and Android
- California Buoys and Tides - Android application in Google Play Store for tracking NOAA buoy observations and tide predictions
- Petaluma Pulse - Android application in Google Play Store that displays information about Petaluma with an interactive, animated scene
- Earth Model - Raspberry Pi Python wood art project for displaying earth's orbital and rotational position in a physical model using steppers motors, hall effect sensors, and magnets
- Tide Meter - Raspberry Pi Python wood and acrylic art project for illuminating WS281X LEDs to display the water level at a NOAA tide station
- Wave Tracker - Raspberry Pi Python digital art project that displays buoy observation metrics on an LED matrix
- Buoy Twitter Bot - Twitter bot implemented as Python AWS Lambda Function that posts hourly messages about NOAA buoy observations
- Garden Explorer - Interactive Javascript Canvas application for exploring garden landscape

Teaching

Volunteer Tutoring

Santa Rosa Junior College

December 2019 - Present

Over the course of several years, I've partnered with instructor David Harden as a volunteer tutor for the foundational CS10ABC series. The three-course set is the primary requirement for a Computer Science degree at SRJC. It introduces computer programming concepts and methodologies as well as data structures and algorithms with C++.

- CS10C - Fall 2021
- CS10A - Summer 2021
- CS10C - Spring 2021
- CS10C - Fall 2020
- CS10A, CS10B, CS10C - Spring 2020

Coder Dojo

Petaluma Public Library

January 2017 - August 2018

The local chapter of CoderDojo met weekly for an hour at the Petaluma Public Library. I was a mentor and instructor for students learning to code with languages including Scratch, Python, and Javascript and with platforms such as Khan Academy and CodeCombat.

Santa Barbara Java User Group

Santa Barbara

June 2014 - June 2018

I organized the Java User Group in Santa Barbara using the Meetup.com platform. Meetings were roughly quarterly and covered topics ranging from Java release news to vector graphics programming on Android to WebSocket programming with Java EE. I arranged speakers, scheduled events, ordered meals, and cultivated a welcoming atmosphere for attendees of all backgrounds.

Publications

AWS Blog

December 2020

How LogMeIn migrated a billion records online from Oracle to Amazon Aurora and achieved sub-millisecond response time
Modernizing with AWS Blog
Elliot Barlas

MILCOM 2008

November 2008

A Satellite Mobility Model for Qualnet Network Simulations
2008 IEEE Military Communications Conference (MILCOM 2008)
Daniel Havey, Elliot Barlas, Roman Chertov, Kevin Almeroth, Elizabeth Belding
Computer Science Department, University of California Santa Barbara

ASE 2007

September 2007

NetStub: A Framework for Verification of Distributed Java Applications
22nd IEEE/ACM International Conference on Automated Software Engineering (ASE 2007)
Elliot Barlas, Tevfik Bultan
Computer Science Department, University of California Santa Barbara