Michael A. Barrientos

1082 Pennsylvania Ave. #406, San Francisco, CA 94107

(415) 367-4825 http://mike.n3.net/ mbarrien@cal.berkeley.edu

# Highlights

* 12+ years professional experience as a software engineer and team lead architect in startup, mid-size, and large corporations.
* Full life cycle in CMM Level 3, Scrum, and Agile software development environments.

# Relevant Experience

Syapse Palo Alto, CA and San Francisco, CA

### Software Architect (6/2016 – Present), Staff Software Engineer (2/2013 – 6/2016)

* Building infrastructure for large data store enabling precision medicine in cancer genomics and next generation sequencing (NGS), scaling company from <10 employees to 125+.
* Initiated efforts to convert monolithic application into decoupled services running in Docker containers with independent databases coordinating via Kinesis stream processing.
* Guided and implemented multiple rearchitectures of data store from in-house database, to Systap Bigdata (Amazon Neptune predecessor) semantic graph store, to Postgres.
* Initiated and implemented DevOps systems to automate, monitor, and scale backend services hosted on AWS EC2/S3/Glacier with SaltStack and initial Terraform prototype.
* Designed and implemented a new query language that translates user requests to SPARQL

Google Mountain View, CA

### Software Engineer (2/2007 – 4/2009)

* Analyzed utilization of resources within machine clusters in Google's datacenters.
* Implemented system to manage job-scheduling risk in cluster management infrastructure.
* Automated computational resource allocation based on user requests.

OFA Chicago, IL

### Engineer (6/2012-11/2012)

* Backend integration engineering for Project Narwhal supporting analytics, internal tools, website, and mobile apps for a successful national political campaign.
* Optimized and added features to fault-tolerant scalable software for real-time synchronization of millions of voters, donors, volunteers and campaign events records between internal databases and 3rd party systems.

Stanford University Palo Alto, CA

### Research Assistant (Unofficial 7/2009-9/2009, Official 9/2009-6/2010)

* Designed and implemented program analysis and compiler infrastructure for embedded domain specific languages in C++ and Scala.
* Implemented and investigated performance characteristics of backend parallel computing infrastructure targeting OpenMP and MPI.

Jetlore Sunnyvale, CA

### Senior Software Engineer (9/2011 – 6/2012)

* Member of founding team for a social network search startup.
* Designed and implemented REST APIs and sharding infrastructure for backend NoSQL databases using MongoDB and Elasticsearch.

Applied Signal Technology Sunnyvale, CA

### Development Engineer (6/2006-2/2007), Software Engineer (6/2003-6/2006)

* Created a system to model arbitrary circuit-switched optical networks, and invented algorithms to calculate efficient routing, scaling through 100x increase in data processed.
* Created and designed extensions to high-performance cross-platform telecom protocol parser library for embedded VxWorks devices and Unix. Restructure allowed several new ITU, ETSI, and IETF standards to be processed and simplified supporting future protocols.
* Defined a generic, distributed, multi-threaded abstraction layer and API to control multiple third-party and proprietary high capacity telecom switches and processing devices
* Supervised 4 engineers creating interface for telecom switches using TL1 control protocol.

# Other Experience

Stanford University Palo Alto, CA

### Course Assistant (4/2009-6/2009, 1/2011-3/2011, 3/2011-6/2011)

* Teaching assistant for CS295 Software Engineering course on program analysis (Spring 2009), CS255 Introduction to Cryptography course (Winter 2011), and CS315A Parallel Architecture and Programming Course (Spring 2011).

# Education

* Stanford University, M.S. Computer Science, Dec 2011 (GPA 3.87)
* University of California-Berkeley, B.S. EECS, Dec 2002

# Graduate Coursework

* Information Retrieval and Text Mining
* Advanced Topics in Compilers
* Computer Systems Architecture
* Parallel Architecture and Programming
* Advanced Topics in Operating Systems
* Advanced Processor Architecture
* Distributed Databases
* Intro to Programming Language Theory
* Algos for Comp. Molecular Biology
* Computational Photography

# Computer Skills/Engineering Skills

Languages: Python, C++, Java, C, Scala, Groovy, UML, JavaScript, Perl, LUA, CSH, BASH, Scheme, Lisp, OCAML, ASP, BASIC, MIPS assembly, VHDL

*Operations Tools*: SaltStack, Terraform, Fabric, AWS IAM/KMS/VPC, Docker

APIs and Toolkits: Django, Django REST Framework, Flask, SQLAlchemy, OAuth 2.0, Amazon SQS/S3/EC2/Kinesis, Lift, STL, Jena Semantic Web, CORBA (OmniORB), Boost, Boost Graph Library, Bigtable, GFS, Xerces XML (SAX2 and DOM), MPI (OpenMPI), OpenMP, AJAX, pthreads, SWING, RMI, MFC, COM, ATL, Bison/Yacc, Lex/Flex, design patterns, TCP/IP

# Other Experience

# Languages Spoken/Written

English (native), Tagalog (beginning), Spanish (intermediate), Korean (1 year)

# Security Clearance

Top Secret with SSBI and polygraph (last current 3/2010)

# Extracurriculars

Piano, Swing Dance, Bouldering, Opera, A Cappella Singing