

## Contact

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## Top Skills

Python

Test Automation

REST

## Languages

English (Native or Bilingual)

Spanish (Native or Bilingual)

## Certifications

Neural Networks and Deep Learning

An Introduction to Interactive Programming in Python

Principles of Computing (Part 1)

Principles of Computing (Part 2)

Software Defined Networking

## Honors-Awards

Fundacion Gran Mariscal de Ayacucho Educational Grant

Best Paper award on Cisco Test conference

## Publications

A comparative analysis of inter-domain multicast routing protocols

VoIP Congestion Control RTP packet size - Simulation

## Patents

Extended multi-line hunt group communication

# Alejandro Avella

Sr. Software Engineer, Test, Roku Pay at Roku Inc.  
San Jose, California

## Summary

About 20 years of software quality experience with emphasis on automation with experience on Python, REST APIs, JSON and Jenkins. Worked in Voice over IP, Video streaming and payment teams. Lead automation engineer and architect for the Continuous Integration / Continuous Delivery (CI/CD) pipeline. 5+ years as technical lead of software testing teams. Expertise testing microservices on cloud environment.

Passion for automation and quality. I am organized, critical thinker, always willing to learn new technologies, able to work with minimal supervision and a team player. Software engineer with a passion for quality assurance.

Machine Learning enthusiast (including Deep Learning). Kaggle competitor. Familiarity with Scikit learn, TensorFlow, Keras, NumPy, Matplotlib. Currently taking DeepLearning.ai Certification in Deep Learning on Coursera.org.

## SPECIALTIES

Quality assurance, test automation, continuous integration/continuous delivery (CI/CD), Jenkins, adaptive bit rate video streaming, scripting, Python, Bash shell scripts, REST APIs, JSON, Linux, troubleshooting complex systems, networking, virtualization, TCP/IP, Ethernet, IPV4, React, Django, Javascript, Backend development, Selenium, Docker, Elasticsearch, Kibana, Kafka.

## Hobbies:

Triathlon, Golf, listening to Symphonic Cumbia

## More about me:

Blog - <https://aavella77.github.io/>

GitHub - <https://github.com/aavella77>

Twitter - <https://twitter.com/aavella77>

Kaggle - <https://www.kaggle.com/aavella77>

Docker Hub - <https://hub.docker.com/u/aavella77>  
Singularity University - <https://global.su.org/profile/56790>  
Coursera - <https://www.coursera.org/user/b034702af9196815a980b8aa97c3840e>  
Facebook - <https://www.facebook.com/alejandro.avella.315>

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## Experience

Roku Inc.

1 year 7 months

Sr. Software Engineer, Test, Roku Pay

October 2018 - Present

Los Gatos, Ca

- Validation of Apache Kafka retry, failed and deadletter queues.
- Validation of API rate limiting using NGNIX
- Validation of database migration at scale.
- Validation of migration of Roku Pay to open-source subscription billing and payments platform (Kill Bill)
- Validation of migration of Aria for processing payments.
- Validation of one time purchases and subscriptions including invoices, credits, refunds and payments.
- Validation of migration of Catalog Service.
- Wrote Roku Pay sanity test suite.
- Experience with SQL and noSQL databases (especially MSSQL, MySQL and mongodb)

Sr. Software Engineer, Test, Cloud Services

September 2017 - October 2018 (1 year 2 months)

Los Gatos, CA

- Worked on multiple cloud billing projects, including monolith to microservices migration, for a population of 21 million active users and serve partners like Hulu, Sling and Netflix.
- Created Python libraries for RESTful APIs CRUD validation for multiple microservices using APIs definitions from Swagger with JSON and XML payloads. Used SSL certificates and JWT authentication for encrypted and secured communication. Validated results using SQL.
- Created a microservice using baseline-microservice as a model using Spring Boot framework in Java.

- Created microservice and end-to-end test cases in Python and integrated automated jobs to the CI/CD framework using Jenkins.
- Performed basic administration of Amazon Web Services including: EC2, ECS, IAM, VPC, Security Groups, ELB, etc.
- Created Python libraries for Kafka consumer and producer validation and email verification.
- Validated the integration of the Roku A/B testing tool and Data Management Platform (DMP) with the cloud Configuration microservice.
- Performed load tests for multiple microservices and end-to-end flows using Locust tool and analyzed throughput, average and 99th percentile response times.
- Troubleshooted issues using Docker containers logs, Docker commands and Kibana logs.
- Collaborated with cross-functional teams of developers, QA and operations. Planned user stories and tasks using Jira working in 2-week Agile sprints including bug filing and prioritization.
- Fixed a bug in the Python automation framework based on the “requests” Python library and unittest and Py.test packages. Contributed new ideas for the automation roadmap.

Technologies: Python, REST, JSON, XML, Microservices, Monolith, .Net/ C#, MS Visual Studio, Eclipse, git, SourceTree, Perforce, MS SQL Server, MySQL, Kafka, SQS, CI/CD, Jenkins, Java, SpringBoot, Swagger, RDBMS, Docker, Terraform, Redis, NGNIX, Amazon Web Services (AWS > ECS, EC2, S3 ALB/ELB, Route 53 DNS, RDS, CloudWatch, IAM, etc.) and Locust.

## Cisco Systems

Sr. Software QA/Engineer, V2PC automation engineer

April 2012 - September 2017 (5 years 6 months)

San Jose, CA

- Won first prize on internal Cisco test conference for the idea of selective regression using code coverage(<https://github.com/aavella77/selective-regression>).
- Multiple internal recognition awards from co-workers and managers.
- Automated configuration for Cisco MOS and V2P for Live, VOD and Cloud DVR based on HTTP adaptive bitrate streaming technologies using Python scripts that called REST APIs with JSON bodies.
- Changed the automation libraries to support token authentication on the product's REST APIs.

- Led the development of a Continuous Integration / Continuous Deployment pipeline using Jenkins, Pytest, Python and Junit for Cisco MOS and Cisco V2PC products.
- Developed an end-to-end sanity script written in Python using the Pytest framework, which starts from the deployment of the virtual machines in VMware or OpenStack infrastructures, configures the system using REST APIs and verifies successful video playback of the video segments.
- Designed and execute feature test cases for Docker and Kubernetes platform for cloud DVR workflow. Setup a Kubernetes cluster from scratch. Tested different Kubernetes authentication methods. Setup Docker registry.
- Developed Bash shell scripts for miscellaneous tasks such as server installation and image download.
- Trained team on automation technologies and created short video on demand units.
- Worked on Agile teams.
- Used Git and SVN for version control.
- Found hundreds of bugs, got to the bottom of the issues, tracked them and verified them in partnership with software engineers.
- Mentored several new team members.
- Delivered presentations on topics such as: OpenStack, Jenkins, Puppet and Cucumber.
- Automated video playback on mobile devices using MonkeyTalk, Apple Mirror and AutoHotkey.
- Developed GUI validation using scripts using Selenium and Firebug.

Technologies: Kubernetes, Docker, Ansible, ElasticSearch, Kafka, MongoDB, Cassandra, Consul, Zookeeper on the Linux platform

## Moongoal

### Co-founder and CEO

January 2010 - April 2014 (4 years 4 months)

Boulder, CO

- Developed an application that connects drivers with road problems with towing companies using PHP and MySQL.
- Proof of concept of a Netflix-like application using Bitmovin tools and Amazon AWS EC2 instance and S3 storage.
- Forked Spigo project for visualizing microservices and Streamium for live video streaming using Bitcoin.

- Developed a game for Android phones in Java called Towers. Designed GUI using XML layouts and code the game logic. Added connection with Facebook post functionality. Added advertisements using Google AdMob.
- Developed several Java applications for Android platform for smart phones modifying existing programs.
- Developed online quiz application on social networking site Facebook using PHP and HTML with a MySQL as the backend.
- Created ApendaInglesCantando.com. HTML/Perl/Javascript application that allows users to guess song lyrics in a web site while the song is playing.

Github: <https://github.com/aavella77>

## Cisco Systems

Software/QA Engineer, Platform Manager

August 2011 - March 2012 (8 months)

Boulder, CO

- Created a system for continuous daily integration tests. Developed Expect scripts to activate services and SFTP files to a server. Created batch files and cron jobs to run the scripts every day. Created Selenium scripts to test the GUI.
- Worked in an Agile team for about 10 sprints and tested server upgrade, switch version and restart controlled via a Web 2.0 GUI. The Unified Communications Applications ran in virtual machines configured via the Vmware Vsphere client. The application had REST and SOAP interfaces using HTTP.
- Automated the “Platform Administration Web Service” for synchronous and asynchronous SOAP requests using soapUI open source tool.

## Cisco Systems

Software/QA Engineer, Cius Android Tablet

January 2011 - July 2011 (7 months)

Boulder, CO

- Tested Cisco Cius Tablet with responsibilities on Video performance (including call timings and end-to-end delay), Browser, QuickOffice app, Adobe Flash Player and Compliance Test Suite (CTS). In the Browser Test Plan, designed test cases for CSS, Javascript, HTML 5 and AJAX.

## Cisco Systems

Technical Marketing Engineer, job rotation, Development of Briefing Center Demonstrations

June 2010 - December 2010 (7 months)

## Boulder, CO

- Developed an application that pushed live video broadcast to a Cisco videophone. Applied for patent.
- Developed an application to push PowerPoint presentations as images to a Cisco videophone.
- Created an Ideas WordPress Plugin by modifying the Post-ratings plugin. The task involved modifying the SQL query sent to the database and GUI.

## Cisco Systems

### Software/QA Engineer, Cisco Unified Communications Manager (CUCM)

November 2004 - December 2010 (6 years 2 months)

## Boulder, CO

- Wrote test strategy for a release of Cisco Unified Communications Manager (lead engineer representing over 100 engineers). This document described the test approach, different levels of testing including unit test, integration test, system test and solutions test, schedule, high level test coverage, responsibilities, resource requirements, and owners for specific areas of testing. Introduced the use of Wikis to collect information from test engineers.
- Automated over 400 test cases using TCL scripting. Used CCMConDb TCL scripts to configure CUCM using the AXL/SOAP interface and used VAPI-UI TCL scripts to control phones simulating CUCM features. Wrote TCL scripts for GUI automation using Selenium and Firebug.
- Mentored a junior team member for the initials months after she joined the company.
- Received award for the idea of translating test plans to automation scripts automatically in order to increase productivity.
- Executed over 2,000 test cases for 6 Call Manager Features (Identification, Call Coverage, Distinctive Ringing, Annex M.1 (H.323 Tunneled QSIG), Time of Day Routing and External Call Control). Built lab configurations, used troubleshooting skills using device level logs, administered Linux and Windows servers, installed databases, ran regression test suites, opened bugs, tracked results in company database, created Video on Demand for transfer of information and verified fixes.

## Carrier Access

### Senior Test Engineer, VoIP Test Lead

May 2001 - November 2004 (3 years 7 months)

## Boulder, CO

- Awarded Medal of Excellence for outstanding contributions in testing.

- Performed system test for VoIP line access gateway controlled by a Call Agent using MGCP or SIP. Led a 4-people team for 3 years. This involved working on over 10 releases analyzing new product requirements, providing test effort estimates for schedules, writing test plans, building test lab configurations, executing test cases, opening bugs, verifying bug fixes, tracking test execution status, and documenting results.
- Tested SIP and MGCP protocol conformance. Tested fax relay T.38. Tested the interfaces gateway interfaces (FXS, T1/E1 CAS and R2/MFR2). Tested codecs used in the packet side included G.711, G.726 and G.729. Among VoIP functions included: Echo cancellation, gain control, jitter buffer, voice quality using PSQM+ and silence suppression. Designed test cases for SIP and MGCP NAT transversal.
- Executed test cases related to router functions such as PPP, MLPPP Interleaving and Fragmentation, QoS TOS tagging and priority queuing, RIP, DHCP, Firewalls and NAT.
- Executed Interoperability tests with Broadsoft, Siemens, Sylantro, Nuera and VocalData call agents using both SIP and MGCP. Tested interoperability with Cisco 2421, 2651 and 5350 line and trunk gateways. Tested interoperability with IP phones such as Cisco 7960 and Pingtel Expressa.

### Level 3 Communications

#### Architect

October 2000 - May 2001 (8 months)

- Acted as team protocol expert on MGCP specification for the Level 3 softswitch.
- Worked on IETF drafts for ISUP to SIP interconnectivity.

### U S WEST Advanced Technologies

#### Systems Engineer

June 1998 - October 2000 (2 years 5 months)

Boulder, CO

- Supported U S WEST marketing team from a technical perspective in the selection of VoIP gateways for transport of voice messaging using packet switching.
- Selected, installed, configured and tested VoIP gateways (Cisco and Lucent) for Voice Messaging transport over packet networks including trunks and SMDI link. Worked with VoIP gateway vendors to solve problems during the proof of concept period.

- Co-authored US Patent 7,394,818 - "Extended multi-line hunt group communication" for transport of a Multi-Line Hunt Group using VoIP gateways between Class 5 switch and remote voice mail system.
- Defined requirements for Internet Appliances to be given to development partners and designed the test plan to be executed before customers would get the product.
- Tested and selected Web Telephones and web terminals. These phones would allow users to connect to the Internet using V.90 and use the phone as a regular phone (no VoIP).
- Worked with USWEST ISP operations's team to integrate back-end of Internet Appliances in POPs.

U S West Advanced Technologies  
Intern, Technology Intelligence Group  
September 1997 - May 1998 (9 months)  
Boulder, CO

- Created an internal web site to track new technologies using Perl, Javascript, SQL, HTML and Access Database with more than 1,000 pages.
- Monitored new technologies on the 3 to 5 year horizon.
- Wrote Technology Intelligence report on IP Multicast and MBONE as possible future areas of growth for the company.

Lucent Technologies  
Intern, Business Communications Systems  
May 1997 - September 1997 (5 months)  
Westminster, CO

- Created a pictorial online directory for a group of about 100 employees. The web site used Perl, interaction with databases and UNIX cron jobs to create a dynamic web page.
- Tested and debugged H.323 Internet endpoint videoconferencing software. In particular debugged Q.931 for signaling and H.245 for media capability negotiation.
- Improved a module of the H.323 client using C++ in MS Developer Studio to improve call control logging and a ported telnet server of the H.323 endpoint from UNIX to Windows.

Sorpresa.com  
Co-founder and CEO  
August 1996 - February 1997 (7 months)  
Boulder, CO



- Designed first online card site in Spanish. Integrated music, animated gifs and text to create customized cards using HTML, Perl and Javascript. The site used forms and the web CGI interface.

### Fabrikasa

Financial Analyst, family company

April 1995 - August 1996 (1 year 5 months)

Caracas, Venezuela

- Generated cash flow analysis reports for banks for more than 10 construction projects (\$30 Million project revenue). Automated cash flow analysis using MS Excel.

### Schlumberger

System Engineer

October 1994 - January 1995 (4 months)

Anaco, Venezuela

### Siemens

Intern

June 1993 - January 1994 (8 months)

- Created hardware prototype of monitoring system of analog PBXs trunks to enable billing on ISDN PBXs having analog trunks instead of ISDN trunks.
- Developed code for the prototype in assembler code for Intel 8031 chip.
- Developed GUI in C++ to configure the prototype.

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## Education

### Stanford University

Certificate, Computer Networking · (2004 - 2006)

### University of Colorado at Boulder

MS, Telecommunications · (1996 - 1998)

### Universidad Simón Bolívar

BS, Electronics Engineering · (1989 - 1994)

### Colegio San ignacio de Loyola