

# BAIHU QIAN

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## EXPERIENCE SUMMARY

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I am an Engineering Lead with extensive hands-on experience in the design, implementation, and optimization of distributed software systems and Project Manager capable of delivering high-impact, large-scale, and complex projects across teams and organizations.

- Service-oriented architecture and microservice architecture;
- High-availability (HA) and scalability best practices;
- Large-scale distributed software system;
- High performance, event-driven and asynchronous software systems;
- Architect and build software systems in the cloud.

## EMPLOYMENT

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### **HyperPlane and New Service, Amazon Web Services**

*Software Development Engineer II*

*Herndon, VA*

September 2017 - Present

[AWS HyperPlane](#) is the group of highly-scalable distributed software-defined network services. My team builds the Layer-3 HyperPlane that provides Pbits/second throughput and 10s  $\mu$ s latency with advanced network features. A new AWS service is under development as the fundamental building block of globalized, enterprise networks in the cloud.

- Architect and implement the control plane for Layer-3 HyperPlane. Responsibilities include service-oriented architecture design, technology selection, DynamoDB table design, and implementation of core systems such as the API front-end and provisioning system.
- Core member of the product design team of the New Service. Responsibilities include API and User Experience (UX) design, cost modeling, and integration with other services.
- Lead a five-engineer team for the New Service. Responsibilities include design and code reviews, project planning and scheduling, coordination and integration with dependencies, and writing code.
- Develop other engineers, improve engineering standards and team's ability to deliver.

### **VPN, Amazon Web Services**

*Software Development Engineer II*

*Software Development Engineer I*

*Herndon, VA*

February - September 2017

May 2015 - February 2017

[AWS VPN service](#) provides highly-available managed connectivity between on-premise networks and VPC using industry-standard IPSec technology. As the foundational offering for hybrid cloud and multi-cloud, It is one of the fastest growing AWS services with an annualized run rate close to \$100MM.

- Developed public features. Responsibilities include feature definition, API design, task planning, implementation, and project management. I delivered the following high-demand features:
  1. [Configurable Amazon-side ASN on Virtual Private Gateway](#);
  2. [VPN Custom PSK, Inside Tunnel IP, and SDK update](#);
  3. [VPN support for VPC expansion](#).
- Optimized the performance, efficiency, and scalability of the provisioning system that builds customers' VPN Connections and manages the lifecycle of over 350,000 EC2 instances.
- Improved the latency, efficiency, and scalability of the routing engine, a stateful distributed service that maintains millions of route tables, computes and distributes routing rules in real time.
- Proposed and implemented architectural changes to reduce the load on the MySQL database.

## SIDE PROJECT

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### Robinhood Portfolio Management

August 2017 - Present

It provides automatic portfolio management for Robinhood at a zero cost, while popular financial management apps (e.g., Mint, PersonalCapital) do not support Robinhood.

- It is a Python application hosted by AWS Lambda. It leverages AWS Secrets Managers to manage credentials and sends daily reports with Amazon Simple Notification Service (SNS).
- Data is persisted to Google Sheet for analysis and visualization.
- Apex and Terraform are used to manage AWS resources.

## TECHNICAL SKILLS

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<b>Programming Language</b>	Scala, Python, Java, Go, Ruby, C
<b>Framework</b>	Akka, Spring
<b>Web Technology</b>	Ruby on Rails, AngularJS, GWT, Node.js, Twisted
<b>Logging &amp; Testing</b>	Log4j, JUnit, ScalaTest, Mockito, Hamcrest
<b>Tools</b>	Git, Distutils, Ant
<b>Relational Database</b>	MySQL, SQLite, Squeryl, SQLAlchemy, JDBC
<b>NoSQL Database</b>	DynamoDB, HBase
<b>Data Warehouse</b>	Redshift
<b>Data Analytics</b>	ElasticSearch, Hadoop, MapReduce, Hive, Spark
<b>Operating System</b>	Major Linux distributions (Ubuntu, Amazon Linux, RHEL), MacOS

## CERTIFICATION

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| · AWS Certified Solutions Architect - Associate | April 2018    |
| · AWS Certified Developer - Associate           | December 2017 |
| · Juniper Networks Certified Associate - Junos  | February 2016 |

## EDUCATION

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### Carnegie Mellon University

*Pittsburgh, PA*

*M.Sc. in Electrical & Computer Engineering*

August 2013 - May 2015

### Zhejiang University

*Hangzhou, China*

*B.Eng. in Information & Communication Engineering*

September 2009 - July 2013

Summa cum laude, Chu Kochen Honors College.