Lehi S. Alcantara

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Summary

Innovative Senior Software Engineer with over a decade of experience designing, building, and scaling high-performance cloud-based applications. Expertise in AWS, Terraform, Docker, Node.js, and full-stack development. Proven track record in architecting mission-critical systems, optimizing CI/CD pipelines, and leading software engineering teams. Passionate about delivering scalable, user-focused solutions and driving technical excellence.

Education

M.S. **Information Technology**, Brigham Young University
- **Thesis**: Deploying and Analyzing Air Quality Sensors in Mongolian Gers

B.S. **Information Technology**, Brigham Young University
- **Minor:** Computer Science

A.S. **University Studies**, Utah Valley University
- **Honors**

Experience

IT Engineer Software Developer, BYU, Office of Information Technology, Provo, UT, 09/2014 – Present
- Led backend architecture and development for the CES undergraduate application, customizing it for multiple universities (BYU Hawaii, BYU Idaho, BYU Pathway, Ensign). Worked with several CES leaders to customize the application to their needs. In this project I used the latest technologies such as: AWS beanstalk, ECS, S3, Lambdas, PostgreSQL, MySQL, DynamoDB, VueJS, Node.js, Typescript, Swagger, Git, Docker, GitHub Actions, Terraform, Postman & Runscope.
- Worked on BYU iOS mobile app using Swift and Android implementing new look and feel as well as new functionality to register for classes.
- Implemented and supported web-based admin tools to facilitate bug fixes, data integrity, and third-party integrations.
- Architected and built decision-processing tools that streamlined application decisions for CES schools.
- Worked on Auto Reg Cart class registration. Students are now able to plan which classes they would like the system to attempt to auto register classes whenever their priority registration day clears them to register. In this project I used the latest technologies such as: AWS, Mongodb, Polymer, Node.js, Swagger, Git, Docker, Kubernetes, Codeship, Runscope and Ghost Inspector.
- Developed a website both front-end and back-end using BYU C Framework and Oracle database. It allowed students to receive clearance to register for both BYU Evening Classes and Salt Lake Center.
- Developed, maintained and enhanced registration internal web-based applications used by Faculty and Staff which supported faculty in grades, reports, and student registration tasks.

IoT Developer & Research Assistant, BYU ECEN NET Lab, Provo, UT, 01/2019 – 04/2021
- Developed IoT solutions using LoPy microprocessors with LoRa/WiFi protocols, programming in MicroPython to interact with energy meters and store data in CSV format.
- Engineered IoT devices with Particle microprocessors (Arduino) to collect environmental data from sensors (DHT22, SPS30, RTC, microSD) and send it to Particle Cloud, triggering a Google Cloud Pub/Sub queue for further processing with a Dockerized Python script and storage in an InfluxDB database.
- Deployed and maintained air quality sensors in Mongolian gers, supporting environmental health research.
- Designed and implemented a Grafana dashboard for real-time monitoring, visualizing sensor data, and sending alerts via Slack for missing data, aiding troubleshooting efforts.
- Conducted big data analysis and cleanup using Python, Pandas, Jupyter Notebook, Matplotlib, NumPy, and SciPy to extract insights from IoT-collected datasets.

Programmer, WALMART, Bentonville, AR, 08/2012 – 09/2014
- Developed a website using C# and VB.NET that allows business users to perform superuser actions on a request that needed to be modified in Teamworks.
- Developed an optimized search look up where depending on the field being used by business users, it prioritizes the search accordingly in order to look through millions of rows in DB2.
- Developed and installed quarterly releases of workflow and taxonomy using IBM DB2 in order to help business be in sync with their current business model.
- Participated in 3 "Hack Day" events where I had to collaborate with different teams to come up with creative resolutions to business problems.
- Migrated .NET desktop tools to a website format using ASP.NET MVC.

- Developed a POC to business in order to move away from spreadsheet format containing workflows. Used ASP.NET and jQuery to retrieve data from DB2.

Information Systems Intern, WALMART, Bentonville, AR, 05/2011 – 08/2011
- Worked as a software developer on an ASP.NET MVC web application, with jQuery on the front-end. The application is designed for suppliers and my focus was to improve supplier usability. I worked on client-side grids to represent data that was more organized and user-friendly to the suppliers.
- Developed a web-based reporting tool. This helped managers generate custom reports which were sortable in order to meet their needs.
- Fixed bugs that were reported by QA. This gave me a better understanding of the code-base as a whole, and enabled me to more fully understand the customer's needs.

Computer Programmer, BYU, College of Humanities, Provo, UT, 04/2011 – 08/2012
- Developed a website that allows students to schedule an appointment with a tutor. Authentication was done via Google OAuth, as well as through the department's MySQL database.
- Developed a website to display a newsfeed, calendar, and picture gallery. Front-end, used jQuery for the UI and Ajax calls to retrieve information from MySQL database.
- Developed a website that enables faculty to perform book searches. Google Books API was used to retrieve book information.
- Developed an Android tablet application that enables faculty to quickly search foreign movies available on BYU media server.

Certifications
- **OpenJS Node.js Services Developer (JSNSD)**, The Linux Foundation
- **OpenJS Node.js Application Developer (JSNAD)**, The Linux Foundation
- **Information Systems Security (INFOSEC) Professionals, NSTISSI No. 4011**, National Security Systems Committee
- **Systems Administrators (SA) CNSSI No. 4013**, National Security Systems Committee
- **Terraform Associate,** HashiCorp (Expected 2025)

Skills

Programming Languages: C#, Java, VB.NET, C++, C, Android, Swift, Assembly LC3, Python, Arduino, Go.
Frameworks: NodeJS, Typescript, VueJS, React, AngularJS, Swagger/OpenAPI, Fastify, Express, Spring, Spring Boot, ASP.NET Web Forms and MVC, Web API, WCF, PHP, JSP, WordPress, WPF, Rest API.
Web: Bootstrap, HTML, CSS, JavaScript, JQuery, JSON.
Database: DynamoDB, MongoDB, InfluxDB, DB2, Oracle, MySQL, PostgreSQL, SQL Server.
Test: Jest, Mocha, Selenium, Runscope, Postman, Ghost Inspector (UI & API Testing).
IDE: WebStorm, Visual Studio & Code, Eclipse, MinGW, Arduino, PyCharm, DataGrip.
Applications: Apache, Nginx, IIS, Git, Subversion, Jira, ServiceNow, VirtualBox, VMware, Wireshark, Gimp, Photoshop.
CI/CD: Terraform, GitHub Actions, Docker, Kubernetes.
Cloud Computing: AWS (S3, Lambda, EC2, ECS, ECR, CloudWatch, RDS, IAM, Route 53, VPC, CloudFront, IoT, SNS, SES, DynamoDB, Parameter Store), Google & Oracle Cloud (equivalent services).
Data Science: Pandas, NumPy, Scikit-Learn, Jupyter Notebook, Grafana.
Information Technology: Cyber Security & Penetration Testing, Digital Forensics, System Administration, Information Security, Firewalls, Server/Client Model, Network Design, Network Configuration, TCP/IP, Human Computer Interaction, Cyber-Physical Systems, IoT Systems Engineering, Data Processing Pipeline.
Computer Hardware & Protocols: Computer Architecture, Digital Communications, Routers, Cisco Switches, Ethernet, Wireless Networks (WiFi, Bluetooth, LoRa).
Operating Systems: macOS, Windows, Linux.
Language: Portuguese, fluent oral and written.
Strengths: Able to solve complex problems. Excellent communication and interpersonal skills as well as cultural awareness. Able to manage multiple projects simultaneously.

Affiliations/Awards
BYU & UVU Alumni Association, BYU IT Student Association, IEEE member, Scholarship recipient.

Projects
- Augmented Reality Innovations – BYU Capstone Project.
  - Developed an augmented reality (AR) solution focusing on improving the learning environment for the deaf by developing a prototype that projects an ASL interpreter on Heads Up Display glasses.
- Mongolia Air Quality Sensors – BYU NET Lab & Thesis Research.
  - Designed, deployed, and analyzed air quality sensors in Mongolian gers as part of BYU NET Lab research and thesis work. Collected environmental data to assess air pollution impacts and improve health conditions.

Publications
- **IEEE**: The Hitchhiker's Guide to Successful Remote Sensing Deployments in Mongolia.
- **BYU Thesis**: Deploying and Analyzing Air Quality Sensors in Mongolian Gers.