

David Alexander

Principal Full Stack Software Engineer

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Professional Summary

Innovative Principal Full Stack Software Engineer with 10+ years of expertise architecting and delivering enterprise-scale platforms and AI-powered solutions. Recognized for building high-performance cloud systems serving millions of users globally. Adept at leading technical strategy, implementing sophisticated AI architectures, and optimizing system performance. Proven track record of driving business impact through technical excellence across diverse domains.

Core Competencies

- **AI/ML Engineering** — Design and implementation of production RAG systems with OpenAI, LangChain, vector embeddings, and knowledge retrieval pipelines
- **Cloud Architecture** — Extensive AWS ecosystem expertise including serverless, containerization, CDK, and distributed systems
- **Frontend Development** — React, Next.js, TypeScript, microfrontends, design systems, accessibility optimization, and state management
- **Backend Engineering** — Node.js, Python, Go, Rust, GraphQL, REST APIs, microservices, event-driven architecture, and real-time data processing
- **Technical Leadership** — Architecture modernization, 0→1 product development, engineering standards establishment, cross-functional team leadership, and mentorship

Professional Experience

Principal Full Stack Software Engineer | Autodesk | 2018 - Present

- Led architecture and development of Autodesk Learn Anywhere Platform from 0→1, creating a scalable infrastructure handling 60,000+ monthly users with 99.99% uptime using AWS Lambda, API Gateway, DynamoDB, S3, CloudFront, and Elasticsearch
- Designed and implemented Autodesk Assistant as a 0→1 initiative, creating an enterprise-grade conversational AI system with RAG-enhanced LLM integration supporting 14+ languages, achieving 75%+ query resolution rates and 40% reduction in support costs
- Architected omni-channel support infrastructure that achieved 45% case deflection rate, reduced support costs by \$3M annually, and improved customer effort scores by 5% through seamless transitions between AI, live support, and case management
- Developed component library and design system with React, TypeScript, and Storybook, adopted by 15+ engineering teams, reducing development time by 30% and maintaining 98% accessibility compliance
- Implemented event-driven microservices architecture with AWS Lambda, Step Functions, SQS/SNS, DynamoDB streams, and EventBridge, improving system scalability by 200% while reducing costs by 25%
- Led Autodesk Support platform transformation through Drupal to AEM migration with React microfrontends, implementing federated GraphQL architecture and server-side rendering for 45% improved search accuracy
- Revitalized Autodesk Community Forums platform by implementing performance optimizations including CDN caching strategies, database indexing, and front-end performance tuning, reducing system downtime by 85%
- Designed and built Partner Finder platform with React frontend, GraphQL API, and Elasticsearch-powered search algorithms, increasing partner discovery by 50% and driving \$2M+ in new business

Senior Software Engineer | Autodesk | 2018

- Led Digital Help & Experience team implementation of self-service transaction capabilities with React, Node.js, and AWS, resulting in 30% reduction in support tickets
- Architected full-stack solutions using React, GraphQL, Apollo, and AWS Lambda, improving system response times by 65% and reducing API integration complexity
- Established trunk-based development workflow with CI/CD pipelines using Jenkins, AWS CodePipeline, and automated testing, reducing deployment times from days to hours
- Implemented infrastructure-as-code using Terraform, AWS CDK, and CloudFormation, enhancing system reproducibility and enabling consistent deployments across environments

Solutions Architect, API Services | Autodesk | 2017 - 2018

- Designed serverless API ecosystem using AWS Lambda, API Gateway, DynamoDB, and SQS that reduced operational costs by 35% while improving scalability and operational resilience
- Created standardized SDK and testing frameworks with TypeScript, Jest, and Swagger/OpenAPI, reducing defect rates by 60% across 4 engineering teams
- Implemented infrastructure monitoring and observability with AWS CloudWatch, X-Ray, and ELK stack, achieving 99.99% system availability and reducing MTTR by 50%
- Led technical strategy initiatives for API design standards, resulting in organization-wide adoption of REST and GraphQL best practices and improved developer experience

Senior Application Programmer | Autodesk | 2013 - 2017

- Led development of backend API microservices for Virtual Agent handling 1,000+ daily customer interactions, employing Node.js, Express, and AWS services
- Architected secure Lambda functions with AWS IAM roles, KMS encryption, and security best practices, processing customer requests with 99.9% accuracy and compliance
- Established comprehensive testing framework with Jest, Supertest, and AWS SAM Local, reducing production incidents by 75% and ensuring service reliability

Technical Expertise

Frontend Development

React, Next.js, TypeScript, JavaScript, Redux, GraphQL/Apollo, Webpack, HTML5/CSS3, SASS, Microfrontends, Design Systems, Storybook, Accessibility (WCAG), Jest/Testing Library

Backend & API Engineering

Python, Go, Rust, REST APIs, GraphQL, Microservices, Event-Driven Architecture, API Design, Performance Optimization, Database Design, Caching Strategies

DevOps & Infrastructure

CI/CD (GitHub Actions, AWS CodePipeline), Infrastructure as Code (CDK, CloudFormation), Containerization (Docker, ECS), Monitoring, Observability (ELK, Datadog, New Relic)

AI & Machine Learning

OpenAI API, LangChain, Vector Databases (Pinecone, OASS, FAISS), Prompt Engineering, Retrieval Augmented Generation, LLM Fine-tuning, Embeddings, Conversational AI, Multi-lingual NLP

AWS Ecosystem

Lambda, API Gateway, DynamoDB, S3, CloudFront, Step Functions, SQS/SNS, EventBridge, ECS/ECR, CloudWatch, X-Ray, CDK/CloudFormation, IAM, Cognito, AppSync, Elasticsearch, RDS, Aurora

Engineering Leadership

Architecture Design, Technical Strategy, Team Mentorship, Cross-functional Leadership, Code Reviews, Technical Documentation, Agile/Scrum, Stakeholder Management

Education

B.S. General Engineering | California Polytechnic State University - San Luis Obispo

Awards & Recognition

- **Autodesk CEO Award (2019)** — Honored for outstanding contributions to the Autodesk Community Forums platform, demonstrating technical excellence in performance optimization and system reliability that significantly enhanced user experience
- **Autodesk CEO Award (2018)** — Recognized for exceptional leadership and technical innovation in developing the Autodesk Assistant, delivering significant business impact through AI-powered customer support solutions