Alhad Bhadekar

alhad.bhadekar@gmail.com ● Phone: (215) 397 8395 ● https://www.linkedin.com/in/alhadb/ ● https://alhadbhadekar.github.io/my-portfolio/

SUMMARY OF SKILLS

- Experienced full-stack software development and AI/ML professional with expertise in Go (Golang), Python, Java, Node.js, JavaScript, and React, delivering scalable, high-performance, data-driven solutions.
- Skilled in Agile methodology, MVC architecture implementation, and developing robust microservices, backend systems, frontend applications, and distributed cloud-native services.
- Proficient in designing, deploying, and operationalizing AI/ML solutions for predictive analytics, natural language processing (NLP), operational intelligence, and enterprise data-driven applications.
- Experience in MLOps, integrating ML models into production pipelines, managing automated retraining workflows, anomaly detection systems, and scalable AI services on cloud infrastructure.
- Strong background in DevOps practices, including CI/CD pipeline design, automation, and orchestration using Jenkins, Concourse, Docker, Kubernetes, and AWS services.
- Solid foundation in software engineering, object-oriented programming (OOP), data structures & algorithms, cybersecurity, and network engineering for enterprise-grade systems.

WORK EXPERIENCE

Software Development Engineer 3 – Comcast **Feb 2023 till date**

Technologies: Go, Python, TypeScript, Docker, Kubernetes (EKS), AWS (SNS, SQS, S3, Lambda, ECS, Fargate, ECR, Route 53, CloudWatch, Aurora, Secrets Manager, VPC, CloudFormation, RDS), PostgreSQL, MongoDB, REST API, gRPC, Protobuf, Concourse, Jenkins, Elasticsearch, Logstash, Kibana, Grafana, Postman, GitHub, Helm, Vault, JWT, Kafka, Kinesis, Machine Learning, Deep Learning, LLMs, LangChain, LangGraph, HuggingFace Transformers, RAG (Retrieval-Augmented Generation), Vector Databases (FAISS, Chroma, ElasticSearch Vector Search), NLP (Natural Language Processing), Transfer Learning, SBERT (Sentence-BERT), Isolation Forest, Anomaly Detection, Predictive Modeling, Scikit-learn, TensorFlow, PyTorch, ONNX Runtime, MLOps, Data Pipelines, Model Retraining, Drift Detection, Anomaly Scoring, Operational Analytics.

Backend Development & Platform Engineering

- Designed, developed, and maintained backend microservices and distributed systems using Go, Python (Django), and gRPC/GraphQL, delivering scalable and resilient production workloads.
- Built secure RESTful APIs with Django and Go, implementing authentication (JWT/RBAC), business logic layers, and efficient database models.
- Modernized legacy monolith components into cloud-native microservices, improving performance, availability, and deployment velocity.
- Implemented Protobuf-based gRPC services to optimize internal communication, reduce latency, and improve throughput.
- Applied object-oriented programming concepts, clean architecture, and design patterns to build maintainable, testable services.
- Wrote high-quality production code, following TDD and adding comprehensive unit, integration, and load tests (K6).
- Debugged and improved code written by others—performing peer code reviews, static analysis, and refactoring for reliability.
- Collaborated with frontend teams, delivering well-documented APIs consumed by React / Redux applications.

AI/ML: Smart Alerting, LLM GenAI, RAG & Automated Remediation

- Built a hybrid anomaly-detection platform using Isolation Forest, SBERT embeddings, and deep-learning models to classify system logs and detect unusual patterns.
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- Designed a RAG-based LLM system that summarizes knowledge-base articles, historical outages, and RCA notes to accelerate incident response.
- Integrated VictoriaMetrics time-series data with LLM-based analysis to reduce alert noise and provide richer operational context.
- Developed Streamlit dashboards, LangServe APIs, and AWS-based retraining pipelines for automated and continuous model improvement.
- Guided engineering teams in adopting ML-driven automation within operational workflows—serving as a technical mentor/lead.
- Used AI agents to analyze alerts and suggest remediation actions, significantly accelerating investigation time.
- Designed and implemented AI infrastructure and multi-agent orchestration frameworks using LangChain and LangGraph, enabling tool-calling workflows, stateful reasoning, model routing, and safe production deployment.
- Built scalable RAG infrastructure with vector databases and hybrid retrieval pipelines powered by HuggingFace Transformers and OpenAI APIs, deployed via Docker, Kubernetes, and cloud-native CI/CD.
- Implemented autonomous remediation workflows where LLM agents triggered runbooks, validated system states, and executed safe-guarded fixes through Kubernetes, PagerDuty, and internal microservices—reducing MTTR and manual effort.
- Engineered an observability-aware LLM pipeline combining Prometheus/VictoriaMetrics, logs, traces, and topology metadata to provide deeper context for outages and anomaly investigations.
- Developed guardrails and security controls for production LLM systems, including access control, tool-call restrictions, custom LangChain directives, and full inference auditing.
- Optimized inference performance using model caching, batching, vector retrieval tuning, and quantized Transformer models (HuggingFace) to enable real-time anomaly scoring and agent decision-making.
- Implemented scalable vector-search and RAG pipelines using FAISS, Chroma, ElasticSearch, HuggingFace embeddings, and OpenAI APIs to support knowledge retrieval, outage summarization, and intelligent alert investigation.

Observability, Metrics & Reliability

- Implemented end-to-end observability with ELK (Logstash, Elasticsearch, Kibana) for real-time log ingestion, search, alerting, and RCA.
- Engineered Prometheus/VictoriaMetrics instrumentation to expose service KPIs (latency, memory, GC, errors, throughput, pod status).
- Built Grafana dashboards for system health, performance trends, and service regression detection.
- Created automated operational remediation workflows for recurring issues (crash loops, pod evictions, resource saturation), improving uptime and reducing MTTR.
- Integrated alerts with Slack, Alertmanager, and runbooks for fast escalation and troubleshooting.
- Identified opportunities to automate remediation of issues—aligning directly with JPMorgan's stability expectations.

Cloud & DevOps

- Deployed and operated services on AWS (EKS, Lambda, ECS/Fargate, S3, RDS/Aurora) with secure, scalable infrastructure.
- Implemented infrastructure-as-code using Terraform, Helm, and CloudFormation for repeatable and auditable deployments.
- Performed Kubernetes capacity planning, pod tuning, HPA configuration, resource profiling, and reliability engineering.

- Built CI/CD pipelines using Jenkins and Concourse with automated testing, container security scanning, and zero-downtime release strategies.
- Designed decoupled build/deploy pipelines enabling independent releases for microservices, greatly reducing risk.
- Implemented versioning strategies (semantic versioning, hotfix releases, feature deployments) for safe rollouts.
- Experience with Git, branching strategies, code reviews, and SDLC best practices.
- Hands-on experience with Docker, containerization, and orchestration using Kubernetes.

Data, Storage & System Design
- Worked with PostgreSQL, MySQL, MongoDB, Redis, and S3-based storage for application and analytics data.
- Strong understanding of relational and NoSQL schema design, indexing, partitioning, and query optimization.
- Designed fault-tolerant microservice architectures leveraging caching, queueing, and event-driven patterns.

Software Developer - Pelmorex Corp. (The Weather Network) **Nov 2021 till Feb 2023**
Technologies: Go, Python, AWS (SNS, SQS, S3, Lambda, ECS, ECR, Route 53, CloudWatch, Aurora, Secrets Manager, CloudFormation, Stacks), PostgreSQL, Jenkins, Terraform, Kubernetes, Istio Proxy, JFrog (Artifactory), Elasticsearch, Logstash, Kibana, Grafana, Rancher, EagleEyes, gRPC, Protobuf, Git, Redis, Filebeat, Kafka, Docker, System DesignDesigned and developed high-performance REST API microservices and GraphQL endpoints in Golang and Python, handling 1,000 requests per second with under 100 ms latency.

Backend & Distributed Systems
- Designed and developed high-performance REST and GraphQL microservices in Go and Python, handling 1,000+ requests/sec with <100 ms latency**.**
- Built gRPC services using Protobuf to reduce internal communication overhead and improve performance for upstream consumers.
- Architected event-driven, cloud-native systems in AWS, migrating legacy components to scalable, fault-tolerant services.
- Leveraged Go routines and channels for concurrent data processing, improving system throughput and responsiveness.
- Developed reusable Go libraries to standardize core functionality across multiple services.

Data & Caching
- Managed geospatial data in PostgreSQL, delivering accurate location-based results for weather services.
- Configured and deployed Redis Sentinel as a distributed cache layer to improve response times and microservice scalability.

Cloud, DevOps & CI/CD
- Managed geospatial data in PostgreSQL, delivering accurate location-based results for weather services.
- Configured and deployed Redis Sentinel as a distributed cache layer to improve response times and microservice scalability.
- Built and managed CI/CD pipelines in Jenkins, automating builds, testing, artifact publishing (JFrog/Artifactory), and AWS deployments.
- Implemented version-controlled release workflows including base releases, hotfix rollouts, and feature deployments for safe production delivery.
- Designed decoupled build and deploy pipelines, enabling independent microservice releases without impacting other systems.
- Deployed workloads on AWS (S3, SQS, SNS, ECS, Lambda) using Terraform and CloudFormation, ensuring scalable and repeatable infrastructure.
- Containerized services using Docker and orchestrated deployments via Kubernetes + Istio, improving deployment reliability and traffic control.

Monitoring, Logs & Reliability
- Implemented observability using ELK (Elasticsearch, Logstash, Kibana)**,** Grafana, and CloudWatch for proactive issue detection and RCA.
- Diagnosed production issues using Kibana dashboards and Grafana metrics, improving system uptime and reducing incident frequency.
- Integrated load testing using K6 and added performance benchmarks into CI to prevent regressions.

Security & APIs
- Built a secure webhook receiver with JWT authentication in Go using API Gateway + Lambda proxy integration.
- Led API security initiatives, implementing rate limiting, authentication, and access controls for public-facing services.

AI / LLM / GenAI
- Built and delivered a production-ready weather alert summarization feature using OpenAI's GPT-3 LLM, enabling clear, user-friendly summaries of complex weather data.

Backend Developer - The Habitat Learn **Aug 2020 till Nov 2021**
Technologies: Python, NodeJS, ReactJS, GraphQL, Jenkins, Terraform, AWS (SNS, S3, Lambda, CloudWatch), Kubernetes, Elasticsearch, Logstash, Kibana, dbDesign, TypeScript, PostgreSQL, Progressive Web App, React Hooks, Redux, Internet of Things IoT – MQTT, EJS, ElectronJs

Backend & Application Development
- Built backend REST and GraphQL APIs using Python (Django) and Node.js to support core web applications.
- Developed full-stack features using ReactJS, React Hooks, and Redux for smooth user interactions.
- Designed scalable system architecture and optimized databases to improve performance and reliability.
- Integrated Azure AD Single Sign-On (SSO) for secure user authentication.

Cloud & Deployment
- Deployed applications on AWS and automated infrastructure using Terraform for consistent, repeatable environments.
- Implemented services on EC2, RDS, and Route 53 and monitored systems through CloudWatch.
- Followed security best practices and performed peer code reviews to maintain high code quality.

IoT & Camera Management
- Built a centralized camera management system using MQTT for remote device control.
- Set up and managed MQTT servers on AWS EC2 to support real-time publish/subscribe communication.
- Developed an ElectronJS desktop application for factory camera testing and operations.

Senior Network Security Analyst / Python Developer - Royal Bank of Canada **Feb 2019 till July 2020**
Technologies: Python (Flask, FastApi, Django), ReactJS, GraphQL, Jenkins CI/CD, Terraform, AWS (SNS, S3, Lambda, CloudWatch, CloudFront), Rest API, MSSQL, Tableau, Git, GitHub, JavaScript, SOAP API, Tableau Web Data Connector

Backend & API Development
- Developed and maintained backend microservices in Python (Flask, FastAPI, Django) with ongoing feature enhancements and support.
- Built new REST APIs based on requirements and ensured backend stability, performance, and scalability.
- Implemented business logic and integrations for security devices such as Check Point and Palo Alto firewalls.
- Used Django REST Framework to parse and process JSON data efficiently from external systems.
- Followed TDD practices and wrote unit/integration tests using unittest and pytest.

Data & Automation
- Built ServiceNow automation applications to pull live incident and change data into Tableau dashboards.
- Designed MS SQL tables and automated data imports using Python and REST APIs for reporting and analysis.
- Developed Python scripts to parse XML/JSON data, integrate with external systems, and generate reports for stakeholders.

Logging, Monitoring & Troubleshooting
- Set up log monitoring and troubleshooting workflows using Filebeat, Logstash, and Kibana.
- Developed systems to collect and visualize traffic and security logs to support platform performance analysis.
- Investigated and resolved incidents involving network, routing, VPN, authentication, and security devices.

Incident Response & Support
- Performed root cause analysis with vendor engineers for major incidents and outages.
- Worked with Cisco, Check Point, Palo Alto, load balancers, proxies, and DDoS protection systems.
- Provided 24/7 on-call escalation support for critical production issues.

Tier 2 Network Analyst - Secure Sense Solutions **Feb 2018 to Feb 2019**
- Provided network support to MSSP clients, troubleshot network issues, analyzed firewall and network activity logs for anomalous behavior, and developed and followed practices and procedures to maintain firewalls and networking equipment.

Analyst II - Forsythe Technology **May 2017 to Jan 2018**
- Provided change management and implementation services, working on the ServiceNow Change Management tool.

TAC Analyst – Trustwave **Aug 2016 to May 2017**
- Provided technical support to SIEM customers facing networking issues, performed log analysis, maintained hardware and software components, integrated with various vendors, databases, and operating systems, and wrote Bash scripts for process automation.

Tier-2 Network Security Support Engineer - Check Point Software Technologies LTD **Jan 2016 to Aug 2016**
- Worked in a technical support center, providing phone, chat, and email support to address clients' networking issues and product performance issues, conducted root cause analysis, and managed RMAs for Check Point Firewall and Management Products.

TECHNICAL SKILLS
- **Backend Software Languages:** Go (GoLang – GOA, GIN Gonic/GORM Framework)**,** Nodejs**,** Python, Java Spring boot, C++
- **Frontend Technologies:** HTML, CSS, JavaScript, Modern JavaScript (ES6, ES7), TypeScript, Bootstrap, React
- **Microservices (API) Frameworks:** Rest, SOAP, GraphQL, gRPC
- **Data Science Technologies:** Numpy, Pandas, Metaplotlib, Seaborn
- **ML and Deep Learning Technologies:** Isolation Forest, Random Forest, XGBoost, KerasNLP, LLMs and NLP, KerasNLP, TensorFlow / Keras, MLOps, Simple ANN, RNN, LSTM RNN, Encoders & Decoders, Transformers, PyTorch, TensorFlow, Scikit-learn, Spark Mllib, Generative AI, LLM, LangChain, RAG, LLM, Ollama, Streamlit, HuggingFace, MCP
- **Parsing Languages:** JSON, XML
- **Scripting Technologies:** bash, Shell scripting
- **Source Code Management:** Git, Github, Bitbucket
- **Monitoring Tools:** Elastic, Kibana, Grafana
- **Defect Tracking and Project Management:** Jira, BugZilla, Monday[.]com
- **Databases (SQL and noSQL):** MySQL, MSSQL, MongoDB, PostgreSQL, Aurora, DynamoDB
- **Methodology:** Agile (Scrum), Waterfall
- **DevOps Tools:** Docker, Kubernetes, AWS, CI/CD Pipelines with Jenkins, Concourse
- **Cloud Infrastructure and Hosting Services:** AWS, GCP, Azure, Kubernetes, Rancher, Helm. Vault
- **Communication protocols:** TCP/IP, UDP, OSPF, EIGRP, BGP, STP, VLAN, RIP, DNS, DHCP, VRRP, GLBP, HSPR, VPN, SDN, SNMP
- **Operating Systems:** Windows, Windows Server, Linux, Ubuntu, CentOs

EDUCATION
- **Master of Electrical and Computer Engineering (GPA 4.15/4.3)** **May 2015**
  Concordia University, Montreal, Quebec
- **Bachelor of Engineering, Electronics and Telecommunication Engineering** **Jun 2013**
  University of Mumbai, India