KAUSTUBH UDAY KULKARNI

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Experience

Teaching Solved LLC   **Jun 2025 – Present**
Backend / Infrastructure Engineer   *Tempe, AZ*
- Developed production-grade backend services in **Golang** using **PostgreSQL**, applying advanced query tuning, lazy loading, and in-memory caching to support 1K+ concurrent user sessions at peak load
- Built Docker-based **CI/CD pipelines** with GitHub Actions, enabling multi-stage deploys, rollback safety and Slack alerts
- Provisioned and managed AWS infrastructure using **EC2**, configuring dynamic autoscaling groups, health checks, systemd-level logging, and scheduled restarts to maintain consistent uptime and cost efficiency during volatile traffic periods

Prevale   **Aug 2021 – May 2023**
Founding Backend Engineer   *Bengaluru, India*
- Spearheaded backend development in **Golang**, implementing connection pooling and circuit breakers to scale APIs for 10K+ concurrent users under strict SLA targets
- Containerized microservices with **Docker** and orchestrated deployments using Kubernetes, incorporating readiness/liveness probes, HPA, and staged rollouts to achieve zero-downtime updates across production environments
- Introduced automated release tagging and deployment metadata tracking across environments, improving change traceability and post-release auditing coverage by 100%
- Integrated custom dashboards and SLI alerts via **Prometheus** and **Grafana**, reducing alert noise, enabling proactive monitoring, and shortening mean incident resolution time across teams during peak traffic incidents

Global Discovery Academy   **Dec 2020 – Apr 2021**
Software Engineering Intern   *Bengaluru, India*
- Built multi-tenant RESTful APIs using **Django** and **PostgreSQL** to track academic performance and user activity across 100+ partner schools, implementing strict row-level permissions and audit-safe logging
- Automated CSV ingestion using **Python** and OpenPyXL, adding schema validation, error logging, and data normalization pipelines to reduce manual data prep time by 70% and eliminate malformed record uploads entirely
- Implemented **JWT-based RBAC** for teacher, admin, and student roles, enforcing scoped endpoint access, dynamic claim evaluation, and real-time permission propagation for secure and maintainable role isolation
- Containerized services using **Docker** and deployed internal dashboards on Linux servers, scripting deployment steps with cron jobs and bash utilities to ensure uptime and traceability for school-facing internal apps

Projects

Golang Compute Queue | *Golang, Docker, Kubernetes, Redis, PostgreSQL, k6*   **Dec 2024 – Jan 2025**
- Built a distributed compute queue in **Go**, exposing REST APIs to enqueue, track, and update jobs in **PostgreSQL**, with **Redis** acting as a resilient task buffer across Kubernetes worker nodes
- Containerized API and worker services using **Docker**, deployed on Kubernetes with HPA; enforced restart policies, liveness probes, and resource quotas for fault tolerance and autoscaling under load
- Enabled retry-safe workflows and status tracking (`pending → success`), boosting recovery reliability by 60%

Elastic Cloud Application | *AWS EC2, SQS, Lambda, Docker, PyTorch*   **Jan 2024 – Mar 2024**
- Built a fault-tolerant, serverless video analysis pipeline using **SQS** and **Lambda**, extracting 10,000+ frames per batch with retry-safe execution, message visibility windows, and frame-by-frame fan-out triggers
- Deployed face recognition models on **EC2** with Docker and PyTorch, running batch inference on extracted frames
- Configured end-to-end observability with **CloudWatch**, capturing structured logs, custom metrics, and per-frame execution timing to monitor pipeline failures, resource usage, and performance degradation trends

Technical Skills

Languages: Golang, Python, SQL, JavaScript, TypeScript, Bash
IaC & Cloud: Kubernetes, Docker, GitHub Actions, AWS (EC2, Lambda, SQS, IAM, S3)
Tools & Frameworks: Gin, PostgreSQL, Redis, Prometheus, Grafana, Pytest

Education

Arizona State University   **May 2025**
M.S. in Computer Science (GPA: 3.87/4.0)   *Tempe, AZ*
PES Institute of Technology   **Aug 2021**
B.E. in Computer Science (GPA: 3.23/4.0)   *Bengaluru, India*