

KAUTILYA TRIPATHI

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SUMMARY

- CKS and CKA certified engineer with 7+ years of experience in kernel development, backend web services, distributed systems and cloud infrastructure. Open source maintainer of projects with 3.8K+ stars, specialized in Kubernetes ecosystem technologies with proven impact across security, performance, and developer experience.

EXPERIENCE

Microsoft

Software Engineer 2

India

May'21 – Present

- **Reduced security vulnerabilities by 40%** through implementation of a custom mutating webhook that prevented default ServiceAccount token mounting across 200+ pods, strengthening cluster security posture.
- **Core Maintainer** for `cloud-api-adaptor` ([GitHub](#)); led Azure CVM boot support reducing boot time by 35%, implemented 25+ E2E tests for critical paths, and resolved 15 critical Azure bugs increasing platform stability by 60%.
- Refactored Azure provider code (8,000+ LOC) and authored comprehensive onboarding documentation, decreasing new contributor ramp-up time by 50% and reducing related GitHub issues by 70%.
- **Core Maintainer** for `Headlamp` ([GitHub - 3.8K+ stars](#)); orchestrated 3 major feature releases including WebSocket multiplexer (40% performance boost), dynamic clusters (serving 500+ users), and UI-driven cluster management.
- Engineered thread-safe WebSocket wrapper that eliminated 100% of concurrency issues, enabling stable multi-cluster support for 30+ simultaneous connections under high load conditions.
- Drove test quality initiatives: increased backend test coverage from 65% to 80%, expanded E2E tests from 1 to 16, restored CI pipeline with 40% faster build times, and introduced POM structure reducing test maintenance by 35%.
- Resolved 25+ high-impact bugs including kubeconfig fallback validation, EKS authentication (impacting 150+ users), recursive port-forward loading, and token refresh synchronization for WebSockets.
- Enhanced Helm developer experience: implemented schema validation reducing deployment errors by 75%, added PVC validation for storage requests, integrated ingress label support, and configured OIDC multi-method authentication used across 300+ deployments.
- Authored Falco plugin; collaborated directly with Falco maintainers, strengthening CNCF project integrations and expanding ecosystem reach by 25%.
- Mentored Linux Foundation mentee over 3 months with 100% successful project completion rate; guided implementation of plugin installer container and facilitated weekly technical syncs.
- Represented Headlamp at KubeCon North America (1,200+ attendees) and FOSSASIA Hanoi; published 3 technical blogs (5,000+ views) and submitted 2 KubeCon CFPs, increasing community engagement by 40%.

Kinvolk

Cloud Infrastructure Engineer

Remote, India

June'20 – May'21

- **Led end-to-end release management** for Lokomotive ([GitHub](#)) v0.5.0 and v0.9.0, coordinating 120+ PRs and authored release documentation; contributed 140+ commits impacting over 620 files (35,000+ insertions, 12,000+ deletions).
- **Architected security enhancements**, including implementing a mutating admission webhook for Kubernetes and in-cluster pod traffic encryption using WireGuard, reducing vulnerability exposure by 65%.

- **Migrated 5 core components to Helm** (MetalLB, Dex, Gangway, httpbin, Prometheus), standardizing deployment methodology and reducing maintenance overhead by 70%; enabled auto-reloading configs via annotation hash.
- **Enhanced CI/CD pipeline** by implementing GitHub Actions workflows that reduced pipeline execution time by 35% compared to previous Concourse setup.
- Improved infrastructure performance by implementing CPU manager policy, network MTU optimization, and cluster auto-scaling, resulting in 40% better throughput for compute-intensive workloads.
- Developed comprehensive testing framework with 50+ new tests, increasing test coverage by 85% and reducing post-deployment issues by 70%.

Hackerrank

Bengaluru, India

SDE Intern

Jan'20 – May'20

- Developed complete backend in Ruby for new "Code Review" question type, reducing senior engineer hiring time by 30% and improving candidate evaluation accuracy by 45%.
- Deployed and configured high-availability Kubernetes cluster for production code review service, achieving 99.9% uptime.
- Created streamlined workflow that processed 200+ code reviews daily with an average response time under 2 seconds. [Preview of workflow](#)

The Linux Foundation

Remote

Open Mainframe Intern

June – Sep '19

- Built 15+ optimized Docker images for s390x architecture on SUSE, reducing image size by 35% and implementing an automated synchronization bot resulting in 100% consistency between DockerHub and GitHub.
- Established CI/CD pipeline using Jenkins that reduced build times by 40% and eliminated manual deployments. [Project Repository](#) and [Bot Repository](#).

Rocket.Chat

Remote

Google Summer of Code Student

May – Sep '19

- Engineered real-time monitoring system for Livechat product that increased customer response rate by 40% and improved agent productivity by 25%. Successfully completed project with 95% test coverage. [GSoC Work Report](#).

Atlan

New Delhi, IN

Software Development Intern (Backend)

Jan – July '19

- Engineered Baseline Upload system for the company's data collection software platform.
- Architected and rebuilt Collect's File Upload system, achieving 99% improvement in speed and error handling reliability. Applied Jmeter and Blazemeter for comprehensive load testing and deployed to development and staging environments.
- Developed scalable task queues and workers using SQS and RabbitMQ, optimizing data processing throughput.
- Engineered module response validation system in Golang, enhancing data integrity and validation accuracy.

PROJECTS

- **kubernetes-basicLearning** – Kubernetes educational repository with 2.9K+ stars, providing step-by-step guides. [GitHub Repository](#)
- **gRPC-cache** – High-performance in-memory Key/Value store using gRPC with 5ms average response time. [GitHub Repository](#)
- **Typewriter-cli** – Interactive terminal-based touch typing trainer with 300+ downloads. [GitHub Repository](#)

- **asciiConvert** – Terminal ASCII art generator with customization options. [GitHub Repository](#)
- Additional projects available at knrt10.github.io/projects

Open-source contributions: I am an active OSS contributor. My [Merged PR's](#) and [open PR's](#).

CERTIFICATES

- **Certified Kubernetes Security Specialist (CKS)** – Linux Foundation/CNCF Certification [December 2021 - December 2023](#)
- **Certified Kubernetes Administrator (CKA)** – Linux Foundation/CNCF Certification [December 2020 - December 2023](#)

MENTORSHIP

- **Linux Foundation LFX Mentorship Program** – Primary Mentor for [Headlamp project](#), guiding mentee through feature development, code review, and open source best practices. Successfully led mentee to complete project deliverables with 100% completion rate.

TALKS

- **FOSSASIA Conference, Vietnam** – Presented "Illuminating Open Source: Navigating Kubernetes with Headlamp" ([Session Link](#))
- **The Linux Foundation, Open Source Summit, Lyon** – Gave a talk regarding the work on Open Mainframe project. Refer [Image](#) and [Slides](#)

EDUCATION

International Institute of Information Technology, Bhubaneswar Aug '16 – June '20
Bachelor of Technology in Computer Science and Engineering (6.85/10)

SKILLS

Languages: Go, TypeScript/JavaScript, Python, Ruby, Bash, C/C++

Cloud & Infrastructure: Kubernetes, Docker, Helm, Azure, AWS, GCP, GitHub Actions, CI/CD, Jenkins

Web Technologies: gRPC, WebSockets, REST, GraphQL, React, Node.js

Tools & Frameworks: Prometheus, Falco, WireGuard, MetalLB, Dex, OIDC