Nishant **Singh**

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Education

Indian Institute of Information Technology Bhopal   *Bhopal, MP*
B.Tech in Information Technology | GPA: 8.76   *Dec, 2021 – Present*
Relevant Coursework: Data Structures and Algorithm, Operating System, Computer Network, Database Management System

Work Experience

Google Summer of Code   *Remote*
Mentor   *Mar, 2025 – Present*
- Mentored contributors to design & implement a scalable observability layer for KubeArmor, integrating 6+ Prometheus metrics to expose real-time insights into policy enforcement, alerting, & overall security activity across Kubernetes & non-Kubernetes workloads
- Introduced and exposed 4+ key production-grade metrics endpoints in Go, adhering to Prometheus exposition standards and enabling seamless integration with observability tools like Grafana, Alertmanager, and custom dashboards, leading to improved observability
- Co-ordinated closely with core maintainers and mentors over 175+ engineering hours to align implementation with CNCF open-source guidelines ensuring consistent code quality, improving traceability, policy enforcement monitoring, and ecosystem maintainability

Samsung Research Institute - Delhi   *Noida, UP*
Software Developer Intern   *Jan, 2025 – May, 2025*
- Implemented runtime API validation using the validator package in Go, adding field-level constraints like minimum/maximum values to Swagger specifications for 11 Iris-based backend APIs, reducing 80% of validation errors and improving overall API reliability
- Revamped UMD movie matching by manually mapping unmatched metadata entries between Samsung's UMD and IMDb, and developing a custom CLI tool that reduced the task time from 4–5 hours to just 30 minutes daily

Cloud Native Computing Foundation (CNCF)   *Salt Lake, USA*
LFX Mentee | Open Source Contributor   *Sept, 2024 – Nov, 2024*
- Transformed the security and management functionality of KubeArmor for virtual machines (VMs) by expanding its feature set by 15% and enhancing the capabilities for unorchestrated containers and non-kubernetes environments
- Developed and optimized 3 real-time configuration interfaces (via karmor.yaml, gRPC, and CLI), enabling real-time updates to security settings without the need for service restarts. Increased configuration efficiency and flexibility, reducing manual intervention
- Streamlined the installation and policy management process by refining the KubeArmor CLI for VMs, reducing installation time by 25%, while extending CLI capabilities to enable faster policy management, resulting in 20% reduction in operational overhead

GoComet Pvt Ltd   *Bangalore*
DevOps Engineer Intern   *Oct, 2023 – Oct, 2024*
- Established a robust monitoring infrastructure by configuring alerts for PostgreSQL 13, specifically targeting the long idling transactions, locks and max concurrent connections, providing immediate visibility into potential issues and enabling swift reslution
- Spearheaded the daily deployment process of production code through a enhanced rolling deployment strategy on Kubernetes, orchestrating seamless updates across 5+ systems and leveraging automated tools to minimize downtime & enhance system reliability
- Enhanced operational insights by setting up Fluentd logging agent to push detailed, enriched application logs to New Relic, enabling deeper understanding of application behavior, streamlined troubleshooting the intricacies & reducing average debugging time by 30%

Projects

Blaze   *blazetv.live*
Go, NextJS, PostgreSQL, WebSocket, WebRTC
- Coded a scalable Omeagle-like real-time video chat platform using Gorilla WebSockets in Go, achieving 10,000+ concurrent WebSocket connections on a single core, structured using SOLID principles and a clean Repository-Service-Controller architecture
- Leveraged PostgreSQL to persist 100,000+ user sessions, metadata, and abuse reports, while building a Next.js frontend integrated with WebRTC, supporting 5,000+ simultaneous peer-to-peer video/audio streams, coordinated through a custom Go signaling server
- Designed and implemented robust CI/CD pipelines using GitHub Actions, automating deployment workflows reducing release times by 70%, and containerized the application with Docker to enable consistent and scalable deployments across multiple environments

GoLoadBalancer   *tesla59/GoLoadBalancer*
Go, Docker, Load Balancer, Concurrency
- Developed an automatic load balancer in Go v1.21 with round-robin functionality, inspired by Kubernetes v1.24 operator architecture
- Leveraged Goroutine and Docker to spawn 3+ load balancer to balance the incoming load and 5+ workers to handle incoming request
- Incorporated SQLite 3 Database to store and provide real-time statistics such as of all workers such as average failure rate and delay

WhisperWeb   *tesla59/whisperweb-backend*
Go, Fiber, REST APIs, SQLite, Docker
- Coded a HTTP Server using Fiber web framework in Go for back-end using SQLite 3 as the DBMS to store and retrieve data
- Designed the front-end part using Next JS 13 capitalising Server-Side Rendering (SSR) pattern to enhance performance and experience
- Containerized the website using Docker ensuring portability and reliability across 5+ different environments and easy deployment

Skills

Languages: Go, Rust, TypeScript, JavaScript, Dart, Python, C, C++
Tools: Docker, Kubernetes, Terraform, Ansible, Git, ArgoCD, SQL, Jenkins
Frameworks: Iris, Gorilla, Flutter, NextJS, GoFiber, Gorm
Platforms: Linux, AWS Cloud, Azure, Google Cloud Platform, Oracle Cloud Infrastructure

Certificates

Jan, 2024   **Google Cloud Certified Professional Cloud Architect**,   *Google Cloud*