

Harmandeep Singh

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Summary of Skills

Expert in software development and distributed architecture, with 8 years of experience in designing, and building scalable softwares and infrastructures across diverse tech stacks and industries.

- Contributed in multiple high-impact software projects for both startups and established organizations, employing **Agile** and **SDLC** methodologies.
- Developed robust applications utilizing **Python's** MVC frameworks (Django, Flask, FastAPI), along with **NodeJS** platform (ExpressJS, and Fastify)
- Led the design and implementation of microservices architecture in containerized (**Docker**) and orchestrated (**Kubernetes**, Helm, Terraform, **Argo**) environments, optimizing system scalability and reliability.
- Managed messaging protocols and event streaming architectures including **RabbitMQ**, **Kafka**, **Redis**, PubSub, SNS, SQS and MQTT, enhancing system integration and data flow.
- Implemented cloud solutions using **AWS**, **GCP**, and **Azure**, improving deployment strategies using **CI/CD pipelines**, **GitHub Actions** and system availability. Experienced in managing EC2, ECS, GKE, lambda and Heroku environments.
- Designed and implemented network solutions including NGINX, Kong, AWS Route53, **reverse proxies**, **service meshes**, VPNs, routing, and advanced **load balancing** strategies to optimize application performance and reliability.
- Enhanced observability and system reliability using tools like **OpenTelemetry**, **New Relic**, and **Datadog**, Sentry, **Cloudwatch** and PagerDuty providing deeper insights into systems.
- Recognized for excellent **leadership** in mentoring junior developers and leading **cross-functional teams**, improving team productivity and project outcomes in async, remote -friendly environments.
- Developed and **integrated AI** solutions leveraging **LangChain**, Ollama, and various **LLMs** to build conversational and data-driven applications with custom **RAG**.
- Managing user authentication and authorization using **auth0**, clerk, and **AWS Cognito**
- Contributed to **SOC 2** and **GDPR** compliance initiatives, ensuring data protection and security standards for organizational processes and systems.

Professional Experience

Flashfood

Senior Software Developer

Toronto, Canada

March 2023 – May 2025

- Responsible for adding new features in backend services using **NodeJS** and **Typescript**.
- Developed Backend for Frontend (BFF) services, improving usability and integration with **React Native frontend**, optimizing developer experience.
- Deployed and ensured **reliability** and **observability** of services on **Kubernetes** using **OpenTelemetry** standards and service mesh.
- Managed **infrastructure** for microservices using **Terraform**, **Azure**, **Key Vaults**, and **Helm**, streamlining deployments.
- Led **SOC 2** compliance initiatives, ensuring adherence to **security standards** for **data handling** and system operations.

PetDrifts

Regina, Canada

Foundation Engineer (IoT)

November 2022 - November 2024

- **Architected** and developed the entire **IoT backend** using Python, FastAPI, and custom TCP/UDP servers, handling thousands of customer requests per second with high availability.
- Designed and implemented **CI/CD pipelines** for **deployments**, integrated with custom **logging** and **health checks** to ensure system **reliability** in production environments.
- Developed and deployed **RTOS firmware** for **Nordic** and **Silicon Labs MCUs**, ensuring robust device **performance**.
- Interfaced and led a team of three engineers in an **async-first, remote-friendly** culture, delivering end-to-end solutions while ensuring **scalability** and **performance**.
- Built **AI-driven analytics** by developing a wrapper layer for an **inference engine**, enabling real-time **data insights** for **IoT devices**.
- Triageed and mitigated **production issues** using **Datadog** and custom **health checks**, reducing **downtime** by 20% and improving system **resilience**.

Blackline Safety

Calgary, Canada

Senior Software Developer

Nov. 2021 – March 2023

- Developed and deployed **distributed Python** services, and **Flask APIs**, including custom **TCP/UDP servers** using **Tornado** and **Twisted**, in **high-availability** production environments.
- Collaborated with **SRE** teams to ensure service **reliability**, implementing **health checks**, **StatsD** metrics, and **Datadog/PagerDuty** for real-time monitoring and **production issue** triage, reducing mean time to resolution by 15%.
- Architected **high-availability distributed systems** using **AWS Lambda** and **AWS ECS**, supporting **scalable** and **fault-tolerant** services with 99.99% uptime.
- Integrated applications with **RabbitMQ**, **Amazon SNS**, **AWS ECS**, and **Kafka** for efficient **event-driven architectures**.
- Implemented **AWS CodeBuild/CI pipelines** for **Python** projects, streamlining **deployments** and reducing rollback instances.

Intragrain Technologies

Regina, Canada

Server Developer

Oct. 2020 – Nov 2021

- Designed and developed **microservices** in containerized environments using **Docker** and **Kubernetes**.
- Developed **data monitoring systems** using **Kafka**, **Zabbix**, **Grafana**, and **InfluxDB** for real-time insights.
- Managed Docker builds and Kubernetes deployments using YAML configurations for GKE.

Khalsa Labs

Regina, Canada

Application Developer

Aug 2017 – Oct 2020

- Designed and programmed an automated blogging application using python, nginx.
- Worked on a **ReactJs** application, a front end for a fitness activity tracking application.
- Developed a Pi based face recognition project and **micro python** firmwares for ESP32.
- Design, document, and implementation of the project 'Analysis of DOS and DDOS attacks' using **Deter testbed** network and python scripts.

Lab91 Software Pvt. Ltd

Sep 2015 – June 2016

Software Developer

- Developed Inventory management system to handle 30k plus products inventory and daily transactions of sale and purchase, using python.
- Maintained a **customer relationship management system** using **Django**, resolving hundreds of customer queries daily. Configure and Manage Linux servers for **django based ecommerce** websites by enabling the **WSGI** and **SSH**, Virtual Hosts on each server.

- Configured and managed **Linux servers** for **Django**-based **e-commerce websites**, enabling **WSGI**, **SSH**, and **Virtual Hosts**.
- Led **training** and **development programs** for company interns and **junior employees**.

Redlizard Studioz Pvt. Ltd

Software Developer

Aug 2013 – Aug 2015

- Designed database architecture to handle over a million e-commerce products without losing website performance.
- Optimized the search performance by 33% of e-commerce platform by replacing existing platform's **ORM queries** to SQL queries.
- Managed third party integrations with Celery, Monit, Mailchimp, Paypal, and AWS Boto.

Hadron Solutions Pvt. Ltd

iPhone Game Developer, Intern

Jan 2013 - April 2013

- Programmed game logic and physics engine for iPhone based 2D games, in Objective-C.
- Debug and optimize various game projects using XCode's profiler.

Education

Post Graduate Certificate in Management, Parkland College Yorkton, SK 2016-2017

Bachelors in Technology (Information Technology), **Punjab Technical University** 2010-2013
 Coursework: Algorithms & Data Structure, Operating Systems, Networks
 Senior year project work focused on developing a VNC server in python, GPA: 8.0/10.0

Skills Highlights

Languages and Frameworks: Python (Django, Flask, FastAPI), Node.js (JavaScript, Typescript, Express, Fastify, Socket.IO), Zephyr RTOS, LLMs, RAG, Pinecone, Java, Go, React, React Native, Vue.js, SQL and NoSQL (MongoDB), gRPC and protobuf

Infrastructure: Docker, Kubernetes, Helm, Terraform, Ansible, Argo, RabbitMQ, Kafka, MQTT, NGINX, GCP, Azure, AWS and Gitlab CI/CD, CircleCI, Cloud Run, Nomad, Consul

Monitoring and Observability: OpenTelemetry, New Relic, Datadog, Sentry, Statsd, Jager

Open source projects:

[Hue Logger](#): an open-source minimal log monitoring tool in Flask, with pypi and npm client.

[LSUSB-UI](#): Graphical User Interface for Lsusb

[Fc-visor](#): Go based cli tool to manage Firecracker micro VMs

[Vectolite](#): A light weight vector database for self-hosted LLMs