ABHINAV RANA

Lead Software Developer

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EXPERIENCE

Lead Software Developer

Persistent

📅 October 2024 – Present   📍 Bengaluru, KR

Client: Vuclip (OTT Platform) | Backend Engineering – Go   **Mar 2025 – Present**

- Led backend development for Vuclip's OTT platform, owning multiple Go-based micro-services handling retail provisioning and subscription lifecycle management at scale.
- Designed and implemented a **Semi-Managed Subscription** system, automating deactivation, suspension, and resumption of subscriptions based on per-partner business configuration – reducing manual intervention and improving reliability for Vuclip's B2B clients.
- Extended retail provisioning services with new features to support activation, deactivation, and resumption flows via partner-facing REST APIs, enabling clients to seamlessly manage end-user subscriptions.
- Drove the migration of legacy subscription services from Java to Go, improving performance, maintainability, and alignment with the team's Go-first microservice strategy.
- Managed end-to-end testing on staging and QA environments, coordinating production validation for the semi-managed subscription feature rollout – delivered successfully with zero critical post-release incidents.
- Proactively identified and resolved security vulnerabilities across multiple repositories as part of a broader vulnerability remediation initiative.
- Managed day-to-day engineering operations including Jira ticket lifecycle, PR reviews, and CI/CD-driven deployments to ensure smooth and reliable releases.

Client: NewRelic | Developer Platform Engineering   **Nov 2024 – Feb 2025**

- Developed CI/CD pipeline infrastructure for the NewRelic product suite.
- Implemented an automated system for scanning and rebuilding Docker images using Trivy, reducing manual intervention in vulnerability management.
- Streamlined the rebuilding of vulnerable images, improving deployment pipeline security and freeing team bandwidth for strategic initiatives.

`Go` `microservices` `REST APIs` `subscription management` `CI/CD` `AWS` `GitHub Enterprise` `NewRelic` `DevOps` `Java migration`

Senior Software Development Engineer

CSG

📅 Dec 2023–Oct 2024   📍 Bengaluru, KR

- Led the design, development, and deployment of micro-services using Golang, focusing on scalable and efficient backend solutions.
- Led the design and implementation of a payment and reservations feature for the Charging System Orchestration (CSO) microservice, integrating multiple repositories and microservices through REST APIs. This initiative required seamless coordination across various services to ensure efficient communication, scalability, and smooth functionality across the entire payment and reservation lifecycle.

`microservice` `apis` `backend developement` `AWS` `golang`

Software Developer - Robotics and AI

MachaniRobotics

📅 Jan 2021– December 2023   📍 Bengaluru, KR

- Orchestrated the shift from a monolithic to a dockerized mono-repo architecture in **Genesis(Engine)**, leveraging Docker and CI/CD principles, significantly reducing production time and bolstering micro-service efficiency.
- Engineered micro-service Gaia for a Go gateway/middle-ware, utilizing gRPC, GraphQL, and Protocol Buffers (protobuf), improving request handling and service orchestration with NGINX and Envoy Gateway integration.
- Developed Gaia, a Go gateway/middle-ware micro-service, incorporating gRPC and GraphQL protocols for streamlined authentication. This enhancement significantly bolstered security, ensuring a robust authentication mechanism, which in turn instilled trust and reliability in the product for its users.
- Integrated NGINX and Envoy Gateway as reverse proxies in Gaia, enabling precise control and efficient orchestration of all micro-services within the Genesis project. This orchestration feature improved request handling and overall micro-services management, positively impacting the product's operational efficiency and ease of scalability.
- Utilized Amazon Elastic Container Registry (ECR) to manage and store Docker container images, ensuring efficient deployment and version control.
- Employed Amazon S3 services for data storage and retrieval, optimizing data management and accessibility.

- Developed **ApexDrive**, a C++ micro-service, acting as a centralized Limb Driver to control all limbs of a humanoid robot within the hardware stack, ensuring smooth animation and precise control. The seamless integration into Genesis, along with optimized motion dynamics, resulted in lifelike limb motions, significantly enhancing humanoid robotics control systems and overall project innovation in robotics interaction.
- Enhanced the Facial Recognition perception pipeline, managing embeddings, and image augmentations, improving recognition accuracy in challenging environments.
- Orchestrated Portail, a GraphQL API gateway microservice, streamlining request delegation and improving system performance, scalability, and backend operational efficiency.
- Integrated ChatGPT APIs to develop a chatbot for a humanoid robot, enabling TTS and STT functionalities, facilitating interactive communication and enriching humanoid's interactive capabilities.

(microservice) (sdk) (bazel) (apis) (backend developement) (c++) (js) (golang) (sensor fusion)

Software Developer (System)
Oracle

📅 July 2018 – Dec 2020   📍 Bengaluru

- Enhanced the end-to-end signaling efficiency in a 3G environment by working on the Virtual Signaling Transfer Protocol (vSTP), contributing to more reliable and streamlined communications.
- Developed key features for the SIGTRAN SCCP Layer within the vSTP, bolstering protocol efficacy and facilitating smoother communications within the 3G network.
- Implemented a segmentation mechanism for data packets to facilitate the transfer of large data loads, significantly improving data transmission efficiency and reducing transmission errors.
- Designed a robust Firewall Management Process to allow only provisioned connections, enhancing system security and minimizing unauthorized access risks.
- Automated the creation of test suites using Python, accelerating the testing process, enhancing code coverage, and contributing to higher code quality.
- Conducted automated end-to-end packet transfer simulation for unit testing, ensuring robust data transmission processes and contributing to the overall system stability and reliability.

(C/C++) (Python) (SIGTRAN) (vnc) (3g)

IT Intern
Oracle

📅 August 2017 – June 2018   📍 Bengaluru, KR

- Added pivotal features and services to the Point of Sale software, broadening its capabilities and making it more adaptable to the varying needs of retailers, from stores to warehouses.
- Successfully executed back-porting tasks, ensuring the software remained compatible and functional with established systems, thereby aiding in smooth transitions and upgrades.
- Conducted rigorous unit testing to validate the functionality and reliability of new features and updates, contributing to a more stable and trustworthy product.
- Upgraded to log4j2, enhancing the logging framework which in turn improved troubleshooting, monitoring, and overall system transparency for better operational insights.
- Executed a jQuery upgrade to bolster front-end interactions, leading to a more responsive and user-friendly interface, enhancing the user experience for retailers.

(Java) (JQuery) (Log4j2) (testing)

PERSONAL PROJECTS

SeeCV
Repository

📅 Bengaluru   📍 Oct 2020

- Initiated the integration of Resume Parser with ChatGPT under the project SeeCV, enabling intelligent parsing of resumes.
- Created a Go-based service utilizing the ChatGPT API to parse resumes efficiently, extracting critical information for streamlined evaluation.
- Established a robust PostgreSQL database schema for systematic storage of parsed resume data, with advanced migration strategies for scalability and ease of database evolution.
- Developed a real-time file validation system for processing PDF resumes, incorporating containerization for efficient deployment and dynamic configuration for runtime adaptability.

(OPENAI API) (Go) (PostgreSQL) (SQLC) (golang-migrate) (docconv) (gin-gonic) (Docker) (unit-testing)

ACADEMIC PROJECTS

drishtypy

Repository

📅 Bengaluru   📍 Oct 2020

- Implemented a training framework for MNIST and Cifar10, laying the foundation for model experimentation and enhancement.
- Crafted custom Deep Neural Net architectures for both MNIST and Cifar10 using the Pytorch framework, fostering a tailored approach to model training.
- Explored various augmentation strategies, receptive field configurations, hyper-parameter tuning, and convolution types, alongside experimenting with DNN architectures like ResNet, enriching the model training process.
- Achieved a remarkable validation accuracy of 99.7% on MNIST with a custom network, showcasing the effectiveness of the tailored architecture.
- Attained an accuracy of 90.2% on CIFAR10 within 25 EPOCHs using the ResNet architecture with Super-Convergence, demonstrating accelerated training efficiency.

(PyTorch) (Python) (DNN) (Machine Learning)

ML - Data Collection, Data Set Creation, Segmentation and Training

Repository

📅 Bengaluru   📍 Dec 2020

- Amassed a collection of over 3000 images featuring Personal Protective Equipment (PPE) - HardHat, Vest, Boots, Mask, aiding in dataset creation.
- Pioneered the custom dataset **majdoor** utilizing these images, formatted to comply with YoloV3 specifications, including Bound Box, Anchor Boxes, and Centroid calculation, as input data.
- Leveraged pre-trained parameters/checkpoints on the custom dataset, training it over 100 Epochs to achieve a mean Average Precision (mAP) of 0.58, demonstrating effective model adaptation.
- Validated the trained model and showcased its performance by uploading a demonstration to YouTube.
- Engineered a pipeline to restructure the dataset, applying data augmentation strategies before feeding it to the trainer, enhancing training data variety.
- Employed the Resnet18 architecture with dynamic Receptive Field, Hyper-Parameter Tuning, and various Convolution types, optimizing model training.
- Trained Tiny-Image-Net for 50 Epochs using Super-Convergence, achieving a validation accuracy of 62.7%, showcasing the effectiveness of advanced training techniques.

(PyTorch) (Python) (DNN) (Machine Learning)

ALMS - Amrita Lab Management System

Amrita University

📅 May 2017   📍 Bengaluru

- Engineered ALMS, a comprehensive lab management system, to streamline the management of lab components within the CTS Lab.
- Facilitated seamless access for users connected to Amrita intranet, allowing them to view available lab components and book them as needed, enhancing lab resource accessibility.
- Empowered admins with the ability to grant requests, manage users, and oversee items, fostering a more organized and efficient lab management process.

(DBMS) (Schema Creation) (Front-End)

Customization and Costing Automation Tool for hardware development

Amrita University

📅 July 2017   📍 Bengaluru

- Developed a solution to streamline hardware design specification, significantly reducing the time required to gather material specifications.
- Implemented robust back-end CRUD (Create, Read, Update, Delete) operations, ensuring smooth data management.
- Engineered a system to save form data to both a database and an excel file (json to excel), providing a dual-data storage solution for enhanced data handling and retrieval.

(PHP) (Back-End)

EDUCATION

Master Computer Science

Amrita University   🎓CGPA : 8

📅 August 2016 – June 2018   📍 Coimbatore, TN

Diploma Java
NIIT   🎓CGPA : 7

📅 November 2013 – Feb 2014   📍 Bengaluru, Karnataka

Bachelors Electrical and Electronics
Vinayaka University   🎓CGPA : 6.5

📅 October 2009 – June 2013   📍 Salem, TN