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Abhishek Singh

Software Engineer

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EDUCATION

Carnegie Mellon University, Pittsburgh May 2023
Master of Information Systems Management
Object Oriented Programming in Java | Database Management | Managing Analytic Projects
GPA: 4.0

Manipal Institute of Technology, India July 2018
Bachelor of Technology in Computer Science and Engineering
Data Structures | Design and Analysis of Algorithms | Operating Systems | Distributed Systems

SKILLS

Functional	Distributed Systems, Design Patterns, Database Management, DevOps, Full-stack Web Development
Languages	Java, Python, C++, Rust, Javascript, SQL, \LaTeX
Frameworks and Tools	Spring Boot, Flask, Angular, ROS, Git, AWS, Pandas, Docker, Jenkins

TECHNICAL EXPERIENCE

RESEARCH ASSISTANT and SYSTEM ARCHITECT | Rethinking Automation in Construction (ReAC) June 2022 — Present
CodeLab, Carnegie Mellon University Pittsburgh, PA

- Using Deep Reinforcement Learning to train differential drive holonomic robots for social navigation in confined construction environments, under Prof. Daniel Cordoso Llach, Yuning Wu (School of Architecture); and Prof. Jean Oh (Robotics Institute).
- Designing system architecture for a ROS-based navigation stack using Deep RL for local path planning trajectory ranking.
- Developing communication mechanism between a Husky's input (3D-Lidar) and the RL modules via ROS-messages.
- Customizing a Dynamic Window local path planner using SLAM, Pedestrian Detection and GA3C-CADRL for Social Compliance.

SENIOR SOFTWARE DEVELOPMENT ENGINEER | Data Control Tower Nov 2021 — May 2022
Delphix Remote, India

- Built an on-prem, self-hosted, scalable central management platform that delivered APIs for supporting DevOps automation workflows like infrastructure provisioning for virtual production database instances to be masked.
- Authored infrastructure automation APIs for provisioning environments and associated virtual databases for continuous data.
- Introduced tagging support on an object-type basis that simplify searches, filtering reports and batch operations.
- Containerized microservices and automated code generation and dependency installation to improve app launch time by 90%.
- Interfaced with Product Managers, Owners and the Dev team to finalize solution architecture.
- Supported automation, e2e testing and CI efforts; conducted

SOFTWARE ENGINEER | Airline E-commerce July 2018 — May 2021
Amadeus Software Labs Bangalore, India

- Engineered a flexible, large-scale e-commerce community product subscribed by 80+ LCC airlines.
- Architected full-stack solutions for record-persistence and credit-based ticket refunds, protecting 75% airline Covid-19 revenue.
- Orchestrated a multi-branch Jenkins CI/CD pipeline to automate builds, unit tests, binary scans, code quality and deployment to improve change lead time by 90% and reduce build failure rate by 67%.
- Dockerized application deployment orchestrated by Kubernetes to improve release velocity by 75% and reduce QA cost by 50%.
- Authored a PCI-DSS compliant payment service to support authentication and authorization of major credit card providers for global points of sale, handling 1.1 million requests per day ensuring 99.99% service availability.
- Owned the accessibility of the passenger information page using CDK; integrated Angular Reactive forms and Adobe AEM CMS to deliver personalized merchandising content, automate asset management and improve page-load time by 25%.
- Performed backend distribution systems migration for Air Canada, transferred 5 million PNRs within 24 hours.
- Designed e-commerce solutions for Air Canada and developed a ticket reservation engine to interface with distribution systems via SOAP-based Spring microservices.
- Provided critical support for high-severity incidents, performed root-cause analysis within SLA and prepared bug reports.

ACTIVITIES

Research Assistant, CodeLab, Carnegie Mellon University	Summer 2022
Columnist, AIR News, Amadeus Software Labs, India	2019-2020
Member, Amadeus Toastmaster Club, India	2018-2020
President, IEEE Student Branch Manipal, Manipal Institute of Technology, India	2017-2018
Co-Founder, Engineers Without Borders Manipal, Manipal Institute of Technology, India	2016-2017