PRAKHAR RATHI M.Sc., Software Engineer

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SKILLS

- Java | OOPS | JDBC | JPA Hibernate | Python | Groovy | Flutter | JUnit | Mockito | AWS
- Java Spring | Spring Boot | Java OSGi | Java Spring Cloud | Microservices | REST APIs
- MySQL | PostgreSQL | MongoDB | Docker | Kubernetes | GitLab CI | Android | Swift
- HTML | CSS | JavaScript | ReactJS | Fluent English | Intermediate German | Native Hindi

EXPERIENCE

Software Engineer at CS Group; Darmstadt, Germany   *05/2022-Present*

- Developed GSMC-CC for European Space Agency's ground-stations (ESTRACK) to replace the existing monitoring and control software
    - Designed, programmed, and documented configuration update and monitoring of satellite parameters via a configuration table file; users can update 100s of parameters, such as vertical velocity of the spacecraft, with one click instead of doing each one by one
    - Implemented synchronized deployment of GSMC-CC on multiple ESTRACK ground-stations across the world; users can deploy GSMC-CC with same configuration and tailored database to several ground stations around the world with a single script
    - Single-handedly programmed a JavaFX application to control GSMC-CC over the network; users can start, stop, update configuration and database on any ground-station from a single machine
- Monitored Data Cross Support Transfer Service (MD-CSTS)
    - Designed the architecture for MD-CSTS component enabling exchange of critical data between GSMC-CC (ground station) and MCS-CC (satellite/spacecraft) software
    - Developing required components; MCS-CC can receive periodic updates of crucial parameters and events on the ground station based on functional resource model
- European Ground Systems Common Core (EGS-CC)
    - Debugged and fixed issues in EGS-CC code; resolved over 30% of the issues found as a part of the team, 100% of the issues assigned to me
    - Led EGS-CC extension to support event management on ground stations via GSMC-CC; migrated 100% of the events from legacy monitoring and control software, assisted UI and tailoring database teams, and implemented the functionalities on GSMC-CC and EGS-CC
- Communicated with clients, specified requirements, and maintained software design documents
- Tech Stack: Java, Java OSGi, JavaFX, Maven, Groovy, Docker, PostgreSQL, Apache Karaf, ActiveMQ, Kafka, Zookeeper, Grafana, GitLab CI, Shell scripts

Research Assistant at Fraunhofer IEM; Paderborn, Germany   *05/2021 - 03/2022*

- Software Developer for Highly Vulnerable Full-Stack Web Application
    - Contributed towards developing a highly vulnerable web application, containerized application, managed GitLab CI, and followed microservice architecture
    - Generalized the deployment process for generating 100s of application jars in a single GitLab CI stage; team could conduct periodic training without spending 8 hours a day generating application jars with different configuration for each participating group
    - Debugged and introduced more than 20% new vulnerabilities in the software
- Tech Stack: Java, Python, Spring Boot, Maven, JPA, Hibernate, JDBC, REST API, Docker, MySQL, Thymeleaf, HTML, CSS, Gitlab CI, Shell scripts

Project Engineer at Wipro Ltd; Bengaluru, India   *07/2018 - 02/2019*
- Migration of legacy SOAP web service to REST API
    - Designed and implemented over 50% of the new REST API based on legacy SOAP web service
    - Assisted testing team in designing integration and regression tests of the new application
- Contributed to the development of an android based automotive infotainment system; the cockpit of the car used facial recognition to identify the driver and auto-configure based on their profile
- Tech Stack: Java, Python, Spring Boot, JPA, Hibernate, JDBC, REST API, Maven, MySQL, HTML, CSS, JavaScript, Android

EDUCATION

M.Sc. in Computer Science from Paderborn University   *10/2019 - 03/2022*
- Specialization: Software Engineering
- Thesis: Automated Cell Header Generation for Machine Learning Jupyter Notebooks at Heinz Nixdorf Institute, Paderborn
    - Extended a Python static analyzer and developed HeaderGen to generate call graphs with cell-sensitive call site identification for Jupyter notebooks and line-sensitive call site identification for Python code files
    - Established a benchmark with over 120 Python programs to test the extended static analyzer; achieved over 94% precision and more than 93% recall in both line and cell sensitive call graphs
    - Fetched Jupyter notebooks from Kaggle programmatically and created another benchmark to assess software performance on real-life notebook; achieved 64.4% precision and 66.1% recall, suggested ways to improve the performance as future work in my thesis report

B.Tech. in Computer Science and Engineering from Dr. A.P.J. Abul Kalam Technical University   *08/2014 - 06/2018*
- Developed several software as a part of the college IT club, first student to get a job during on-campus placements in 2018 batch

PROJECTS

VARobot: Virtual and Augmented Reality Assisted Robot Programming   *03/2020 - 03/2021*
- Programmed an Android app for Robot Programming in Augmented Reality with the team
- Designed and developed single-handedly a unique approach of programming a Lego NXT Mindstorm robot by programming an Android plugin for Unity using Java for LeJOS and Android Studio as the backend with over 95% accuracy
- Contributed to the website development https://varobot-pg.github.io/
- Tech Stack: Java, Python, Unity 3d, Android, LeJOS, HTML, CSS

Sentiment Analysis of Scraped Consumer Reviews   *04/2017 - 13/2018*
- Scraped the data related to the searched item from 3 giant e-commerce websites.
- Programmed sentiment analysis script and arranged reviews into 3 categories.
- Contributed to the UI and REST API development.
- Tech Stack: Python, HTML, CSS, Scrapy, Beautiful Soup, MongoDB.

TRAININGS AND CERTIFICATIONS
- **Master Microservices with Spring Boot and Spring Cloud from Udemy**   *01/2024*
- **Software Architecture and Design of Modern Large Scale Systems from Udemy**   *11/2023*
- **Industrial Training in Java-J2EE from Aptron Solution Pvt. Ltd.**   *07/2017 - 10/2017*
- **Training in Java-J2EE from Ducat**   *12/2016 - 04/2017*