Harsh Pal

Bengaluru, India | theharshpal2306@gmail.com | +91 8368802064 | Portfolio | Harsh Pal

Education

Indian Institute of Technology, Roorkee *Nov 2020 – July 2024*
Bachelor of Technology
- CGPA: 8.19

Experience

Associate Software Engineer *Bengalore, Karnataka*
WiseTech Global Pvt. Ltd. *July 2024 – Present*
- Optimized **AWS SSM** parameter initialization by implementing intelligent caching and batch retrieval strategies, reducing API calls by 60% and achieving significant cost optimization in cloud operations.
- Implemented data validation framework for **PostgreSQL-LakeFS** synchronization, ensuring 100% consistency through **CI/CD pipeline** integration.
- Enhanced system resilience in Cargowise Next by implementing comprehensive **exception handling** framework for critical issues including **JSDisconnectedException** and **NullReferenceException**, reducing system downtime by 40%.
- Developed extensive **unit testing** suite using **NUnit & Moq**, achieving 95% code coverage and implementing **test-driven development (TDD)** practices to ensure production reliability.
- Engineered seamless data integration pipeline between Freight2020 mobile platform and Cargowise Enterprise system using RESTful APIs and message queuing, enabling real-time driver data synchronization.
- Implemented automated **code quality assurance** by developing custom **bash scripts** for **linting** and **static code** analysis, enforcing industry-standard coding practices across development teams using tools like **pylint**, **mypy** and **isort**.
- Migrated **Windows Forms** app to **Blazor WebAssembly**, implementing Microsoft Teams-like **browser-based remote desktop functionality** with 70% reduced deployment complexity.

Research Intern *Victoria, BC, Canada*
University of Victoria *May 2023 – Aug 2023*
- Worked on a research, specializing in **micromechanical modeling of thermal conductivity** in wood composites.
- Developed thermal conductivity equations for diverse cross-laminated timber panels, for different scenarios.
- Contributed to research with wide-reaching implications for energy-efficient construction practices in North America, South America, and Europe.

Projects

AR Based Game
- Developed a 3D FPS Mobile Game in Unity, incorporating AR technology for enhanced player immersion.
- Utilized AR Foundation to seamlessly integrate virtual enemies into real-world environments through the device camera, delivering an immersive combat experience.

Minimization of Earing defects in deep-drawn cups using Machine Learning
- Employed machine learning and FEM simulations to reduce earing defects upto 54% in deep drawing due to metal anisotropy.

Byteshell in C
- Created a lightning-fast C-based command line shell with an execution time of just 0.05 seconds.
- Features a Compact Command History, storing up to 100 entries with a minimal 2 MB footprint.

Technical Skills

Languages: C++, C#, TypeScript, JavaScript, Python

Technologies: .NET, WinForms, Unity, Next.js, React.js, Node.js, Express.js

Concepts: Distributed Systems, Data Structures, Algorithms, OOPs, System Design (HLD and LLD), Computer Network, Database Management System

Soft Skills: Communication, Team collaboration, Problem-solving, Adaptability, Time-management.

Achievements

- Won **Professional Development & Innovation** Award for Bachelors' Project in **IITR's Convocation 2024**.
- Awarded the **Mitacs GRI** fellowship which is a 12-week fully-funded research internship under the supervision of faculty members from a prestigious universities in **Canada**