Hemanth Pedamallu

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Education

University of Florida - Gainesville, Florida Jan 2023 – Dec 2024
Master of Science in Computer Science *GPA: 3.77/4.00*

- Coursework: Analysis of Algorithms, Advanced Data Structures, Database Management System, Computer Networks, Software Engineering, Distributed Operating System Principles, Agile Project Management.

Skills

Languages Java, Python, SQL, C++, C#, JavaScript, Dart, HTML, CSS, Typescript.
Technologies React.js, Flask, Next.js, Bootstrap, Docker.
Frameworks/Tools Spring Boot, Hibernate, PostgreSQL, MySQL, AWS, Git, .Net, REST API, Flutter.

Experience

University of Florida | *Full Stack Developer (blueberrybreeding.com)* Sep 2023 – Dec 2024

- Launched web application using **React** and **Spring** to analyze geo-located gene data across 2 large blueberry plantations; migrated from CSV to digital platform, cutting 10 hours/week in data processing.
- Designed and hosted a resilient **PostgreSQL** database on **Amazon RDS**, structuring schema for 100,000+ plants genetic, fruit, and location; implemented indexing, materialized views, optimized joins to improve query performance.
- Engineered a **Flutter** application for offline data collection, synchronizing with **Firestore** and PostgreSQL; achieved an average of **4 sec** for transmitting, processing, and storing each photo.
- Deployed and orchestrated the application on a robust on-premises **Linux** server, leveraging **containerization** to optimize resource utilization and seamlessly hosted the application.
- Built a **Qt** (**C++**) application for a fruit quality device on Raspberry Pi 5, utilizes WiringPi for serial communication with the load cell, texture analyzer and camera module.

Capgemini | *Software Engineer* Feb 2022 - Dec 2022

- Developed a Rate-Limiter library based on **Token Bucket** algorithm within a distributed systems architecture, utilized across 15+ **microservices**.
- Integrated **OAuth 2.0** with **PKCE** to enable Single Sign-On for the application.
- Implemented 10+ features in a **Spring Boot** microservices architecture, optimizing SQL queries for high traffic scenarios and boosting application responsiveness.
- Enhanced front-end user interface with **React.js**, aligning with contemporary **JavaScript** frameworks and improving client-side experiences to create end-user-centric solutions.
- Tested features using 50 plus **JUnit**/**Mockito** test-cases and analyzed the application for improvements with SonarQube.
- Deployed the application in a **distributed systems** environment using **Amazon ECS** with AWS Fargate to ensure zero downtime and fault tolerance with multiple cluster nodes.
- Utilized **Agile** methodologies to manage tasks and sprints, fostering effective **cross-functional** collaboration.

Mirra Health Care | *Trainee Software Engineer* Aug 2021 - Feb 2022

- Developed a prototype of health insurance claim application, a clone of company product in **ASP.NET** MVC architecture with **Microsoft SQL Server**.
- Updated actual company application modules, by optimizing the database queries thus resulting in at least 4x faster data retrieval.

Projects

Logistics Trend Analysis Engine

- Developed REST API using **ASP.NET** Core 7 to process 1M+ shipment records, implementing complex SQL trend analysis from airline domain.
- Created optimized **SQL** scripts with MATCH_RECOGNIZE and MODEL clauses for multi-stop freight pattern detection.
- Automated KPI reporting using parameterized stored procedures and .NET Quartz scheduler.

Remote Control for Growth Chambers| *For internal use at Blueberry Lab*

- Developed a **Go**-based system for multi-device growth chamber monitoring using **TCP/IP** for real-time updates.
- Implemented concurrent device handling with goroutines and sensor data processing using Go's net package.
- Integrated with a responsive web interface using **Go templates** and **HTMX** for dynamic updates.

VOIP Spam Call Detection | *https://ieeexplore.ieee.org/document/9788233*

- Published at IEEE Xplore conference on application to detect the spam calls from the SIP responses (600,000 responses) which are extracted from pcap files by using Wireshark.
- Proposed Random Forest Classifier with 95.8% accuracy and utilized High Performance Computing (HPC) techniques such as parallel processing for optimized performance.