

# Girish, Daivik

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## EDUCATION

- New Jersey Institute of Technology, New Jersey** *January 2024 – May 2025*  
*Master of Science in Computer Engineering*  
*Coursework: Machine Learning, Computational Intelligence, Computer Networking, Internet and Higher Layer Protocols, Computer Architecture, DSA, Java, Semiconductor Devices, Embedded Systems, Discrete Events Dynamic Systems.*
- Global Academy of Technology, VTU, India** *August 2016 – August 2020*  
*Bachelor of Engineering in Electronics and Communication Engineering*

## TECHNICAL SKILLS

- Programming Languages:** Java, Python, C, C++, JavaScript, Embedded C
- Web Development:** HTML/CSS, React, Node.js, Flask (Python), SAP UI5, SAP Fiori, RESTful APIs
- Embedded Systems & Microcontrollers:** STM32 (F4 Series), STM32CubeIDE, CMSIS-DSP, Real-Time Processing, Interrupts, DMA, ADC, USART, I2C, SPI, GPIO Handling, Signal Acquisition
- Microcontrollers & Hardware:** STM32F446RE, ESP8266, Raspberry Pi, MAX9814, DHT22
- Databases:** MySQL, SQL, SQLite, PostgreSQL, MongoDB
- Cloud Platforms & Integration:** SAP BTP, AWS, Google Cloud Platform (GCP), Cloud Sync, IoT Connectivity (MQTT, WiFi – ESP8266), USB/Serial Communication, Data Logging
- AI/ML & Signal Processing:** Machine Learning, PyTorch, Computer Vision, CMSIS-DSP, FIR/IIR Filters, Genetic Algorithms, Signal Processing, Computational Intelligence, Edge Optimization
- Tools & Version Control:** Git, GitHub, Jira, Postman, Jenkins, ST-Link, Logic Analyzers, Debugging
- Development Practices:** Agile, Unit Testing, Buffer Management, Latency Optimization, Power-Efficient Design

## PROFESSIONAL EXPERIENCE

- Infosys / Senior Systems Engineer** *May 2021 – November 2023*
  - Led the end-to-end development of 3+ **SAP CAPM** applications using **SAP Fiori**, **SAP UI5**, **JavaScript**, and **Java**, improving user productivity by 20% and reducing delivery timelines by 30% through Agile sprints.
  - Integrated **SAP XSUAA** (Authorization & Trust Management) and **SAP Launchpad** services to implement secure access and role-based navigation, reducing authentication issues by 40% and increasing user satisfaction by 25%.
  - Analyzed and optimized 6+ large datasets with **SAP HANA DB** and SQL, improving application performance by 15% and increasing test coverage by 28%.
  - Identified and resolved **32+ critical bugs** across **SAP applications**, enhancing system stability and maintainability.
  - Collaborated with cross-functional Agile teams using tools like **GitHub**, **Jira**, **Jenkins**, and **Postman** for version control, CI/CD, and API testing.
  - Contributed to sprint planning, SAP application code reviews, and regression testing, ensuring timely delivery of high-quality features.
  - Conducted user feedback sessions and implemented iterative enhancements to **SAP Fiori** interfaces, while preparing documentation and leading knowledge transfer for **SAP BTP** applications to improve user experience, maintainability, and onboarding efficiency.
- Knowx Innovations Pvt Ltd. / Intern** *July 2019 - August 2019*
  - Developed a scalable **IoT home automation system** using **Raspberry Pi**, **Python**, and various sensors, enabling real-time control and monitoring of home appliances to enhance convenience and security.
  - Integrated the solution with **Google Cloud Platform (GCP)** and utilized **Firebase** for real-time data storage, remote communication, and multi-device control across distributed locations.
  - Designed and implemented **modular Python scripts** for device control, sensor data processing, and cloud communication, improving code reliability and maintainability.
  - Optimized data transfer and processing logic, resulting in a **15% improvement in system efficiency** and reduced latency during command execution.
  - Addressed hardware-cloud integration challenges by leveraging **Google Cloud APIs** and implementing a robust feedback loop to ensure seamless, real-time device synchronization.
  - Created detailed technical documentation covering system architecture, integration workflows, and deployment procedures, supporting scalability and future enhancements.

## PROJECTS

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### IoT-Based Temperature & Humidity System with Dashboard /STM32 / ESP8266 / Flask / React / Python/ MongoDB

- Engineered sensor firmware on **STM32F446RE** with **ESP8266** to transmit **DHT22** temperature/humidity **data every 30s over Wi-Fi**.
- Developed **Flask REST APIs** to receive and store **1,000+ timestamped records/day** in **MongoDB**, enabling **real-time backend processing**.
- Integrated **AWS** services for cloud syncing and **remote access**, supporting **scalable**, globally accessible deployment.
- Designed a responsive **React.js dashboard** using **Chart.js**, **Tailwind CSS**, and **React Hooks**, achieving **<1s latency**, improving **UX by 40%**, and increasing **monitoring efficiency by 80%**.

### Java Servlet ATM System / Java / MySQL / Servlets /

- Built a simulation of an ATM system using **Java Servlets**, supporting **real-time user authentication**, **secure transactions**, and **account management**.
- Designed and optimized a **MySQL database** schema to manage user data, balances, and transactions with improved query performance.
- Supported **50+ concurrent users**, maintaining session integrity and preventing race conditions.
- Improved backend query handling and UI flow, increasing data processing efficiency by **30%** and offering a realistic ATM interface for training or demo purposes.

### Image Camouflaging Using Genetic Algorithm / Genetic Algorithm / Python / PyTorch / Google Colab /

- Designed and implemented a **Genetic Algorithm** in **PyTorch** to evolve camouflage patterns that blend images into background textures, focusing on perceptual similarity and concealment effectiveness.
- Developed custom genetic operators such as **blending crossover**, **Gaussian mutation**, and a **Bees Algorithm-based local search**, enhancing diversity and improving convergence towards optimal camouflage.
- Leveraged **GPU acceleration in Google Colab**, achieving a **5x speedup** over CPU training and enabling large-scale parallel evolution of camouflage candidates.
- Optimized selection pressure and mutation rates, resulting in a **30% increase in convergence speed** and better visual fidelity in camouflage blending across diverse backgrounds.

### ML Diabetes Health Indicator /Python / Scikit-learn/ Pandas / NumPy / Google Colab

- Developed a **machine learning classification model** to predict early-stage diabetes using real-world health data (glucose, BMI, age, blood pressure).
- Applied **data preprocessing** techniques including normalization, missing value handling, and feature selection to improve model accuracy.
- Trained and compared multiple classifiers (**Logistic Regression**, **KNN**, **Decision Tree**), achieving up to **86% accuracy** and high AUC scores.
- Visualized feature relationships and performance metrics using **Matplotlib** and **Seaborn**, enhancing model interpretability and insight delivery.

### Audio Noise Cancellation /STM32 / MAX9814 / Embedded-C / USART /

- Developed a real-time noise cancellation system using **STM32F446RE** and the **MAX9814 microphone**, targeting live audio capture in noisy environments.
- Applied **FIR filters** using **CMSIS-DSP** to suppress unwanted background noise and enhance playback quality.
- Used **ADC with DMA** for continuous audio capture and **USART/USB streaming** for output to a connected PC.
- Implemented **interrupt-driven buffering** and real-time signal processing to achieve low-latency, high-fidelity audio suitable for embedded audio applications.

## CERTIFICATES

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- **Docker Essentials: A Developer Introduction – Cognitive Class / IBM** April 2025  
*Credential ID: CO0101EN*  
Gained practical knowledge of Docker containers, image creation, container lifecycle, and deploying containerized applications using Docker CLI and Docker Hub.
- **Software Engineering Virtual Experience Program – JPMorgan Chase & Co. / Forage** February 2025  
Completed hands-on simulation involving interface development, data visualization, and secure backend communication, mimicking real-world tasks of JPMorgan software engineers using tools like **React**, **Python**, and **REST APIs**.