

HARIESHWAR JAGAN ABIRAMI

WEB APPLICATIONS DEVELOPER

(905) 462-8721 | jaganabh@mcmaster.ca | harieshwar.dev | github.com/HariEshwar-J-A | linkedin.com/in/harieshwar-ja | Hamilton, ON

HIGHLIGHTS

- Graduate Student pursuing Master of Engineering in Systems and Technology (Co-op) at McMaster University, **eligible for a 4 to 12-month co-op starting in May 2024.**
- Experienced result-driven and self-motivated senior engineer and full stack web developer with standard-setting technical, research, leadership and communication skills acquired through more than 3 years of experience, in Industrial IoT Software Development.
- Strong background in PERN/MERN stack web development, IoT edge module development, research and development in software engineering, agile project ownership, problem solving in real-time systems.
- Excelled in handling/owning multiple frontend and backend development projects from presales, estimation, budget planning to delivery and billing, from renowned international organizations like NI, Intel, 3M, Emerson, Texas Instruments and Cutsforth – functioning in North America.

SKILLS

Web Technologies

- HTML5
- CSS3 – Responsive
- JavaScript ES6+
- Typescript
- React JS
- React-Redux
- Webpack
- Three JS
- D3 JS - charting
- Plotly JS
- Material UI
- Jest
- Figma
- JSON/SVG
- Node JS - Express
- Python
- Python Fast API
- Python Flask
- LabVIEW
- C
- REST API
- PostgreSQL
- Influx DB
- Mongo DB
- Elastic Stack
- Docker
- Git
- Atlassian Suite

Protocols

- HTTP(S)
- TCP /IP
- I2C
- MQTT
- OPC UA
- Modbus
- Bluetooth

Design Patterns

- Data-driven
- Observer
- Provider
- Decorator
- Adapter
- Singleton
- Gang-of-Four

EXPERIENCE

Senior Project Engineer

JUN 2022 – JUL 2023

Soliton Technologies Private Ltd., Great place to [work](#), (Partnered with [NI](#)) Bangalore, India

- Architected IoT edge modules using **OPC UA** and **MQTT protocols** for an **industrial IoT – cloud agnostic on-premises monitoring and control** software with complex features like **microservices architecture**, which was greatly appreciated by customers for 100% coverage of the proposed solution.
- Developed and owned an **Agile** cinema robotics **web-based application development project** that involved end-to-end delivery using **React JS, Node JS, LabVIEW, C++, Math, and Python** technologies, exceeded all expectations of the customer, and signed long-term engagements worth more than 100k USD.
- Collaborated with **UI/UX** designers, developers, and stakeholders for development of **Human Machine Interface (HMI)** for a knife sharpening system on **end-user perspective**, and **multi-lingual dashboards**, in turn resulted in high customer satisfaction and contract extensions of 1 year.
- Standardized usage of **React JS** within the organization by utilizing the developer's community aligned with the expectations from each team, and drafted the **documentation**, which resulted in 35% improvement of efficiency and about 15% reduction in delivery time.
- Created an internal software for resource and asset management using technologies such as **React JS, AJAX, Node JS, PostgreSQL, Gitlab/Bit Bucket, SVG/XML**, etc., with **cross-browser compatibility**, which resulted in 50% improvement in resource management and in enabling hybrid work – with savings of around 35% from estimates.

Project Engineer

AUG 2020 – JUN 2022

Soliton Technologies Private Ltd., Great place to [work](#), (Partnered with [NI](#)) Bangalore, India

- Pioneered a semiconductor validation software employing **React JS, Node JS (loaders, middleware), Python, MySQL, and Electron**, incorporating a **data-driven architecture** with **widgets/graphical UI components** and multi-scale **sampling algorithm**, to validate semiconductor devices, resulting in **low-cost-accelerated GUI development**, and added 5 new license purchase within a year.
- Initiated and implemented **unit testing** using **Jest** and **React Testing Library** in a **React JS** frontend project to **debug** and address preexisting quality issues, resulting in 100% test coverage, 30% improved application quality, enhanced team **communication** on acceptable software standards.
- Created an **industrial IoT** edge module using **Python FastAPI** and deployed it using Docker in **Linux** for data transfer between edge computers using **OPC UA** and **Azure cloud databases/ dashboards**, which enabled 40% of the engineers to monitor and control devices from remote location.
- Researched and developed an **industrial internet of things** proof of concept, using **NI sensor device drivers** to extract high-volume stream data using **Python**, exhibiting **willingness to learn**, documented the process, and thereby bolstered 100% confidence in securing industrial IoT projects for the organization.

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Project Engineer Intern

JAN – MAR 2020

[Soliton Technologies Private Ltd.](#), Great place to [work](#), (Partnered with [NI](#)) Coimbatore, India

- Trained in a new graphical programming language – **LabVIEW**, in the capacity of 40 hours per week for over 3 months, developed real-time **state-machine applications** like calculator and flight ticket booking system, showcasing **time management skills**, and secured full-time placement.

EDUCATION

Master of Engineering, Systems and Technology - Automation and Smart Systems, Co-op

SEP 2023 – PRESENT

McMaster University, Hamilton, ON

- Relevant Coursework: Cyber Physical Systems, IoT & Industrial IoT, Practical Project Management, Industrial Automation, Advanced Robotics & Automation, Prototyping Web & Mobile Applications, Industrial Components Networks & Interoperability, Artificial Intelligence & Machine Learning.

Bachelor of Engineering, Electrical and Electronics Engineering

JUL 2016 – JUN 2020

Anna University – RMD Engineering College, Chennai, India

- Scored **Cumulative Grade Point Average of 8.57/10** – First Class with Distinction, making into the top 5% of the university.
- Relevant Coursework: Computer Programming, Object Oriented Programming and Lab, Embedded Systems, Linear and Digital Integrated Circuits, Microprocessors and Microcontrollers.
- Achievements:
 - Scored highest in aptitude/programming tests conducted by [AMCAT](#) out of 3500 students.
 - Placed in top 30 programmers in a programming platform named [Skill Rack](#) out of 200,000+ students.
 - Placed top 310 in **Google Hash Code** contest – 2019.

ACADEMIC PROJECTS

Car Anti-theft System – An Open-Source Initiative

SEP – DEC 2023

IoT, Raspberry Pi 4B, AI Face Detection sensor, Ultrasonic sensor, PubNub, React.js, Material UI.

- Created an open-source IoT enabled car anti-theft system by leading a team of 3, with a working initial product to add a security layer for cars and a platform for fellow engineers in contributing towards an extensible architecture, and a customizable software, with generic APIs, which resulted in completion of a working prototype and published in GitHub.

SafeHome – An IoT and Deep Learning based system for monitoring risks of fire and gas leaking

SEP – DEC 2023

IoT, Raspberry Pi 4B, Deep Learning – YOLO V8 Nano/Micro Human Detection, Camera Module, DHT11 sensor, Flame sensor, Telegram Bot.

- Integrated an array of DHT and flame sensors with a camera module using raspberry pi 4 alongside deep learning for human detection to prevent fire accidents occurring from stove, which was completed and presented successfully.

Two Wheelers Accident Prevention using IoT

SEP – DEC 2019

IoT, Arduino, MPU-6050 3-axis Gyroscope sensor, PubNub.

- Modelled a solution for preventing two-wheeler accidents using gyroscope to control ABS - by leading a team of 4, which resulted in improving the efficiency of the existing systems by 11%, finding the ride patterns and in future, to provide analytical data via web dashboard.

INTERESTS AND EXTRA-CURRICULAR ACTIVITIES

Community Services

- Mentored juniors from alma mater in [Smart India Hackathon](#) Grand Finale **Software** Edition (2022) - **national project contest** by **Central Government of India**. Architected and prototyped an **IoT solution** to aid **wastewater treatment in industrial plants**, and a marketplace solution available in the **IoT dashboard**. Received great comments from the jury and gained 6 industrial connections with interest towards pursuing the prototype as a product.

Chess

- Ranked within **top 350,000** in World Standard Chess Ratings ([FIDE Rated 1279](#)).
- Member of Chess Federation of Canada and McMaster University Chess Team.