KAVA THIYAGARAJAH

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HIGHLIGHTS OF QUALIFICATIONS

- **Innovative Collaboration:** Effective team player who stays current with the latest trends in hardware and software, and a strong advocate for open-source technology.
- **Machine Learning Leadership:** Proven track record in spearheading and executing sophisticated machine learning initiatives, translating data insights into actionable strategies.
- **Rapid Prototyping:** Adept at swift prototyping, ensuring timely and high-quality project deliverables.
- **Programming Prowess:** Strong programming skills in Python, embedded Linux, and DevOps, showcasing a versatile skill set for addressing diverse data, hardware, and software challenges.
- **Data Mastery:** Proficient in data science with hands-on experience in leading data collection, pruning, and visualization projects.
- **Effective Communication:** Outstanding communication and interpersonal skills, enabling productive teamwork and stakeholder engagement.

Software Proficiency

- Ki-Cad Schematic& PCB Layout
- Autodesk Fusion 360 CAD, SKETCHUP 3D Modeling
- VS CODE, Linux, Embedded IoT,
- Docker Container / OTA firmware deployment
- Serverless Architecture, Cloud Functions, On-Premises, Hybrid Server
- Python, Embedded Programming, Local LLM
- Jupyter Machine Learning Notebook

Hardware Expertise

- Microcontrollers, Microprocessors & Low-Power ICs
- Network Protocols: WIFI, BT, 6LowPan, LoRA
- Communication: I2C, SPI, UART, MQTT, I2S
- Debugging: Oscilloscope, Logic Analyzer, JTAG
- Arduino, micro python, platform.io
- PCB Design & Prototyping
- Advanced knowledge of MEMS Sensor and IC selection

Machine Learning RISC Hardware Researcher **Aug-2020- July 2024**

University of Windsor ECE, BMS LAB Windsor, Ontario

Custom Smart IoT Battery Management Design & Nextgen micromobility electric 2-wheeler development platform

- Led hardware embedded parts selection to create custom System on Chip (SoC) solutions for micromobility, automotive, and home energy storage applications.
- Conducted integrated chip system analysis, focusing on component, power, and thermal properties using computer-based Finite Element Analysis (FEA).
- Collaborated with professors, graduate students, industry partners, and external stakeholders to build a multidisciplinary cross-functional team.
- Directed end-to-end design and development of a next-generation micromobility e-bike platform, utilized by university, agricultural, and urban partners.
- Designed and developed advanced Battery Management Systems (BMS), Field-Oriented Control (FOC) speed controllers, and integrated machine learning algorithms for enhanced performance and efficiency.

PROFESSIONAL EXPERIENCE

Lead Data Scientist & Internal Software Automation Developer **June 2018– July 2022**

Enerva Energy Solutions Inc Toronto, Ontario

- Engineered an internal software tool to streamline review processes for +100 use-cases, ensuring compliance with Enerva's Terms and Conditions and internal checklists for Renewable Energy Applications.
- Deployed interactive dashboards across Salesforce and internal teams, leading training initiatives to ensure consistent customer experience.

- Championed process automation, documenting workflows and generating insightful reports on resource management, enhancing efficiency and enabling successful multi-customer deployments.
- Innovated tracking applications and escalation protocols, improving internal team escalations and facilitating swift expert deployment for issue resolution.
- Managed and delivered multiple concurrent projects, collaborating effectively with business SMEs and vendors to provide comprehensive solutions.
- Provided robust data analytics support, crafting comprehensive reports on individual applications and program performance to drive continuous customer experience enhancements.
- Developed Python-based tools to support crucial project milestones and empower the internal team.
- Designed and hosted web-interactive GIS Maps for executive and client presentations, showcasing key performance metrics for bid proposals.

Lead Hardware Engineer **May-2013- July 2024**

Nikola Electronic R&D Lab Toronto, Ontario

Embedded Engineering:

- **Collaborative Projects:** Partnered with University of Windsor ECE, Gates Corp, and the Automotive Parts Manufacturers' Association of Canada.
- **AI-Powered BMS Development:** Developed an AI-driven Battery Management System (BMS) for electric vehicle (EV) smart charging, featuring preventive maintenance and predictive anomaly detection.
- **Energy Hardware:** Integrated micro-generation energy tracking with grid-tied utility for vehicle to home uses
- **Innovative Design:** Designed a lithium-ion system for home peak shaving and intelligent demand-response in commercial applications.
- **IoT Solutions Prototyping:** Created low-cost System in Package (SiP) boards through prototyping IoT-embedded solutions.

EDUCATION

Hydro One System Investment & OPG Nuclear Power Plant Co-op

Electrical Engineering & Management Program **McMaster University**