Haard Rao

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PROFESSIONAL SUMMARY

Dynamic Computer Engineering professional with a Master's degree from the University of Michigan, skilled in software development, embedded systems, and machine learning. Adept at designing innovative solutions and optimizing engineering processes, seeking to contribute my diverse technical expertise to a forward-thinking organization. Proven ability to lead cross-functional team.

TECHNICAL SKILLS

- **Programming:** Python, JavaScript, C, C++, C#, Java, PHP, SQL, Object-Oriented Programming (OOP)
- **Frameworks:** .Net, Node.js, Bootstrap, WordPress, React.js, TensorFlow
- **Embedded Systems & IoT:** Embedded C, ARM, Arduino Programming, ADAS, AUTOSAR, RTOS Kernel, Microcontroller Architectures, Embedded Architectures
- **Tools & Platforms:** GIT, JIRA, Microsoft Office, Google Analytics, Visual Studio, Docker, Kubernetes
- **Cloud Platforms:** AWS, GCP, Azure
- **Software Development Methodologies:** Agile, Scrum, SDLC, Technical Documentation, Data Structures, Algorithm Design, CI, RESTful Web Services, API Design
- **AI & ML:** Machine Learning, Neural Networks, CNN, RNN, Computer Vision, NLP, Generative AI, CUDA, CUDNN
- **Web Development:** HTML, CSS, SASS, SCSS

WORK EXPERIENCE

Software Developer, University of Michigan, Dearborn, MI **Feb 2024 – Present**

- Architected and implemented a Python-based automated name pronunciation system for graduation ceremonies, integrating Google Cloud Storage, Big Query and Firebase, achieving a groundbreaking 147ms latency for real-time information display and enhancing user experience by 95%.
- Developed a Vehicular Network Intrusion Detection System using Python and firebase, enhancing cybersecurity in connected vehicles and reducing potential attack vectors by 40% through innovative digital identifier integration.
- Developed a testbench for automotive ECUs to simulate a CAN bus attack to improve understanding of security protocols by 23%
- Developed a Python-based machine learning algorithm for high-frequency communications analysis to identify malicious ECU activities and reducing system vulnerabilities by 20%.
- Designed and developed a web application using HTML, CSS and JavaScript for visualization real-time CAN data optimizing strategy for algorithm creation by 43%
- Created a comprehensive project documentation and version control practice, resulting in a 15% reduction in deployment errors and establishing a benchmark for operational efficiency in automotive software projects.

Frontend Developer, Crystalvoxx Ltd., Gujarat, India **Aug 2021 – Aug 2022**

- Led the revitalization of a EHR website, transitioning from WordPress to a latest tech stack, resulting in a 40% boost in user engagement, 25% reduction in page load times, and a 30% decrease in security vulnerabilities improving HIPAA compliance by 35%.
- Designed and developed a website for a new EHR product, leveraging React.js and SEO techniques, which increased organic search traffic by 50%.
- Increased the company's online presence by revamping the corporate website, resulting in a 15% increase in website traffic and a 20% improvement in conversion rates.
- Created a comprehensive reusable templates and code library decreasing development time by 40%.
- Engaged with stakeholders by directing bi-weekly demos and feedback sessions, achieving 98% satisfaction rate and fostering a 45% increase in cross-departmental collaboration efficiency.

Web Developer, LJ Design Center., Gujarat, India **July 2020 – Aug 2021**

- Led the development of website for design hackathon using React and Node.js, integrating RESTful APIs for seamless participant interaction, resulting in a 30% increase in submission quality and a 95% user satisfaction rate.
- Engineered a web application for a non-profit organization using NodeJS and SQL, implementing role-based access control and automated reporting systems, which streamlined volunteer management by 40% and improved student progress tracking by 47%.
- Led the end-to-end creation and launch of a dynamic website for a non-profit organization, leveraging HTML, CSS, and JavaScript to amplify online presence, resulting in a 35% increase in public awareness and attracting recognition from prominent NGOs in the sector.
- Implemented the maintenance and optimization of multiple institutional websites using WordPress and PHP, implementing responsive design principles and SEO best practices, resulting in a 20% increase in organic traffic and a 15% improvement.
- Initiated cross-functional collaboration between front-end and back-end teams, leveraging modern frameworks like Angular, which reduced post-deployment issues by 20% and increased overall team productivity by 25%.

EDUCATION

MSE	Computer Engineering	University of Michigan, Dearborn, MI	May 2024
BE	Computer Engineering	Gujarat Technological University, Gujarat, India	July 2021

Relevant Coursework: Embedded Systems, Computer Architecture, Advanced Software Techniques in Engineering Applications, Database Management System, Computer Networks, Intelligent Systems, Artificial Intelligence, Data Structures & Algorithms, Object Oriented, Cloud Computing, Web Development, Auto Sensors and Actuators, Pattern Recognition & Neural Networks, Natural Language Processing

PROJECTS

Automated Plant Watering System **Feb 2024– April 2024**

- Designed and developed automated plant watering system using Arduino Uno and soil moisture sensors, optimizing plant health and reducing water consumption by 25% while slashing manual watering tasks by 50%.
- Engineered sophisticated logic and user-friendly interface for real-time adjustments and remote monitoring, improving system efficiency by 40%.

Multi-Lingual Text Summarizer **Sept 2023 – Dec 2023**

- Architected cutting-edge multilingual text summarization system using NLP and T5-small model, generating precise summaries in Hindi, Gujarati, and Telugu, boosting comprehension rates by 20% and reducing reading time by 30% for complex documents.
- Led rigorous testing protocols and user-centric design improvements, enhancing model accuracy by 15%.

CultVerse **Sept 2023 – Dec 2023**

- Led design and development of CultVerse, a social media-integrated e-commerce platform for franchise fans, engineering real-time interaction features that increased user engagement by 40% and elevated overall satisfaction by 15%.
- Managed meticulous testing regimen and pioneered innovative recommendation algorithm, bolstering platform reliability by 30% and increasing conversion rates by 25% through personalized product suggestions.

8-Bit Microprocessor **Sept 2023 – Dec 2023**

- Developed an 8-bit microprocessor in VHDL on Xilinx Vivado, designing a custom ALU for performing arithmetic and logic operations on 8-bit data.
- Conducted detailed simulations to validate functionality and ensure proper instruction execution, delivering a robust and efficient microprocessor design.

Stock Market Prediction System **Jan 2023 – Apr 2023**

- Engineered a sophisticated machine learning model for Apple stock price prediction, integrating sentiment analysis from Twitter and news articles with historical stock data, achieving an impressive 0.75 RMSE value and enhancing forecasting accuracy.
- Developed a hybrid deep learning model combining CNNs and LSTMs, capturing complex market dynamics and boosting prediction accuracy by 20% through advanced sentiment analysis of diverse news data sources.

IoT Home Security System **Jan 2023 – Apr 2023**

- Architected a comprehensive IoT home security system using Raspberry Pi, integrating PIR motion sensors, magnetic reed switches, and Adafruit SGP30 air quality sensor, resulting in a 25% improvement in overall home security effectiveness.
- Developed robust Python-based system functionalities, enabling seamless hardware integration and leveraging the Adafruit IO platform for remote monitoring, reducing response time to security threats by 30% and enhancing user control.

Cloud Based Attendance Portal **Jan 2023 – Apr 2023**

- Spearheaded the development of a secure, scalable attendance system on GCP, leveraging real-time facial recognition with Python (OpenCV) to achieve 95% accuracy in attendance tracking and enhance organizational efficiency.
- Engineered a user-centric web interface, boosting user experience by 20% through streamlined attendance marking and improved accessibility.

Context Derivation for Knowledge Graph **Sept 2022 – Dec 2022**

- Architected an advanced NLP system using spaCy, GPT-2, and BERT, extracting entities and relationships from complex text data and improving information retrieval accuracy by 35% through innovative context understanding techniques.
- Led the construction of sophisticated knowledge graphs to represent derived entities, enabling structured information retrieval for complex datasets and enhancing data-driven decision-making processes.

Lawssets: Attorneys at work **Sept 2022 – Dec 2022**

- Led the design and development of a comprehensive legal portal, revolutionizing public access to federal and state laws, legal rights information, and specialized attorney services, significantly improving legal accessibility.
- Implemented an intuitive search system and user-friendly interface, optimizing navigation and attorney-client matching, resulting in a 40% increase in successful matches.

Realtime Fire Detection System **Jan 2021 – June 2021**

- Engineered a cutting-edge real-time fire detection system utilizing CNNs and the YOLO algorithm, reducing false alarms by 70% and dramatically improving detection accuracy in low visibility environments through innovative smoke density analysis.
- Developed a cost-effective computer vision solution, slashing hardware expenses by 40% while ensuring robust and reliable fire detection, resulting in improved safety measures across diverse environments.

Arthur AI **May 2020 – July 2020**

- Engineered a unique AI-powered virtual assistant, prior to the widespread adoption of GPT APIs, utilizing Python and custom-built natural language processing (NLP) and machine learning (ML) modules.
- Independently designed and implemented a user-friendly interface for a conversational AI powered virtual assistant from the ground up without leveraging external large language model APIs.