



# Karthik Arabandi

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## SUMMARY

Pursuing **Master of Science in Electrical Engineering** with specialization in **Vehicle electronics and Systems engineering**

- Hands on experience in Sensors application testing and Automotive ECU's
- Tested and validated designs in Simulink and Verilog using MATLAB
- Knowledge in AutoCAD, schematic diagrams and currently training on CAN tools
- Experience in documentation the test results of various test cases in run in MATLAB and other tools
- Good problem-solving, organizing, communication and presentation skills with ability to work in team environment

## EDUCATION

### Masters in Electrical Engineering University of Michigan

📅 09/2019 – present 📍 DEARBORN, USA

GPA : 3.54

### Bachelor's in Electronics and Communication Engineering VNR Vignan Jyothi Institute of Engineering and Technology

📅 07/2014 – 05/2018 📍 HYDERABAD, INDIA

GPA : 3.4

## WORK EXPERIENCE

### Electrical Engineer LAD Technologies

📅 05/2018 – 08/2019 📍 HYDERABAD, INDIA

- Developed Electronic Schematic layout using AutoCAD/EAGLE
- Tested LED Software for display boards(front, back & side) to identify errors in functionality
- Verified netlist for developed schematics
- Cross-checked PCB layouts to check design specifications
- Documented functional test reports
- Closely worked with production team(LED display boards)

### Jr Electrical Engineer (Intern) Bharath Heavy Electrical Limited (BHEL)

📅 06/2017 – 01/2018 📍 HYDERABAD, INDIA

- Performed Load flow analysis and load calculations to estimate the auxiliary power consumption and corresponding operational costs
- Collected the spread sheets for different generator ratings and worked in a team to identify and analyze the fault conditions and report the analysis to the senior electrical engineer
- Gained knowledge on SCADA and learnt how the application program works for industrial process control, gathered data in real time from remote locations to control equipment and conditions

## TECHNICAL SKILLS

- **Languages:** C, Python, Keil, Verilog, VHDL, Embedded C, Raspberry Pi
- **Software:** MATLAB, SIMULINK, SCADA, Git, Particle Workbench IDE, Visual Studio Code
- **Protocols:** CAN(SAE J1939), LIN
- **Product Development Process:** Agile Scrum Methodology

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**ACCIDENT DETECTION SYSTEM USING GPS AND GSM**

- System is employed using MEMS sensors, PIEZOELECTRIC sensors, GPS, GSM, Arduino micro controllers and the application of Network subsystems
- If the vehicle is involved in an accident, the system sends the location coordinates to the nearby police station, hospitals and noted contacts

**DESIGN & SIMULATION OF AN ISOLATED BIDIRECTIONAL DC-DC CONVERTER**

- Designed a high-efficiency isolated bidirectional DC-DC converter for distributed energy storage devices (batteries)
- Calculated circuit parameters by selecting suitable components that are commercially available with proper circuit topologies
- Simulated the model in MATLAB/Simulink
- Designed a bidirectional double switch forward converter and validated in simulation software in MATLAB and Simulink
- Developed the model in such a way that the power flow in the switch converter can be controlled by the direction of current flow

**WIRELESS COMMUNICATION BETWEEN VEHICLE TO VEHICLE FOR VEHICLE SAFETY**

- Facilitated V2V communication system that helps by alerting the drivers to prevent vehicle to vehicle collisions
- Employed the use of RF Transceivers, Proximity sensors, Arduino controller, IOT and cloud computing the communication between V2V is established

**PREDICTION OF THE NOVEL COVID-19 OUTBREAK BUILD ON SIR SYSTEM**

- Examined the data from WHO, CDC and organized the compartments such as susceptible, infected, and recovered
- Designed the system in MATLAB to observe the plots/graph
- Explained what fraction of suspected people are infected by considering the whole population and the plots of models explains the future COVID-19 situation and estimates the cases

**COMPARISON STUDY OF SUPERVISED MACHINE LEARNING TECHNIQUES APPLIED FOR THE PREDICTION OF AVIATION DATA (Research)**

- Studied the conceptualization of support vector machines and neural networks in the hypothesis of machine learning
- Observed the results from Ensemble methods, classification, and regression trees over set of multiple outputs

**LDPC CHANNEL CODING FOR 5G NR**

- Deployed vehicular automation and signal health monitoring services in 5G NR
- Introduced the physical layer in downlink shared channel with a powerful channel coding algorithm, LDPC (Low Density Parity Check), replacing Turbo coding that was used in 4G LTE
- Implemented channel coding to achieve better performance even at lower channel SNR which assures improved quality of reception
- Simulated the PHY Layer of 5G NR systems in MATLAB mainly focusing on performance analysis of LDPC codes and get exposure on advanced communication systems
- Calculated Bit error rate of transmission after reception and the performance plot can be analyzed graphically in MATLAB