DARSHIL R. TRIVEDI

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Research team: http://ubmixedsignals.eng.buffalo.edu/index.php/members/ | **Portfolio:** https://darshiltrivedi.github.io/

EDUCATION:

Master of Science in Electrical Engineering Aug 2019-Feb 2021
University at Buffalo, The State University of New York-Buffalo **3.85/4.00**
Bachelor of Engineering, Electronics Engineering Aug 2015-May 2019
The Maharaja Sayajirao University of Baroda, India **3.58/4.00**

SKILLS & TOOLS:

Languages: Python, C, C++, Assembly Language, Embedded C, VHDL, Verilog, System Verilog, SQL.
Tools: Cadence Virtuoso, Matlab, LABview, EAGLE PCB, KiCad, Vivado, Altera Quartus, ModelSim, Android Studio.
Technical Skills: Neural Networks, Reinforcement Learning Linear Algebra, Linear & Logistic Regression, Fuzzy Logic.
Certifications: Python for Everybody Specialization, TensorFlow in Practice Specialization by deeplearning.ai, SQL for Data Science, Visualization with Tableau.

PROFESSIONAL EXPERIENCE:

Engineering Intern, Siemens India Pvt. Ltd. May 2018- July 2018
- Acquired basic knowledge of PLC and performed ladder logic simulations on siemens simatic to optimize the process.
- Researched and tested 7 different type of sensors & gauges and did competitive analysis of sensor working.

Analog/Mixed Signal VLSI Group| University at Buffalo Jan 2020-May 2020
- Researched and Coined an output capacitor-less low dropout voltage regulator in 65-nm CMOS Technology.
- Designed a Reference Voltage for LDO which was a Subthreshold Voltage Reference with scalable output voltage.
- Developed MOSFET-level schematics and layouts to perform different analysis using Cadence Virtuoso.
- Enhancement in Load & Line regulation, Temperature Compensation and cost reduction was obtained compared to previous result.
- Chip area was reduced to 1/3rd of existing technology, resulting in LDO for SoC usage.
- LDO achieves Line regulation of 5.43 mV/V and 0.2mV/mA of Load regulation with dropout Voltage of 200mV.
- The LDO was used to drive 5-bit SAR ADC to achieve an SNDR of 28.934.

ENGINEERING PROJECTS:

Big Data Analytics and Image Recognition | University at Buffalo Jan 2019-May 2019
- Implemented Perceptron, SVM, Linear & Logistic Regression, k-NN, Random Forest and K-means from scratch on MNIST and Fashion MNIST datasets and applied 10-fold cross validation to get a maximum accuracy.
- Employed a CNN based model for Image Recognition using AlexNet architecture. Strategic initiatives were taken in existing CNN to get a better accuracy. Top-5 accuracy of around 68% was obtained for oxflower17 dataset.
- Predicted data set using reinforcement Learning, Q & double-Q, transfer learning and convolution neural networks.

FPGA Calculator | University at Buffalo Jan 2020-May 2020
- Built a FPGA Calculator with help of Basys3 board. VHDL as Language in Vivado tool was exercised for this project.
- Execution of simple arithmetic operations and logic left shift between 2 decimal operands was achieved using calculator and results were displayed on 7-segment display.
- Different push buttons on basys3 were used to store operands and select operations to be performed.

Volumetric Display using LASER | The Maharaja Sayajirao University July 2018-March 2019
- Generated a virtual 3-D volumetric display from it's 2-D version on a smoke screen utilizing LASER technology.
- Created LASER galvanometer scanner and closed loop Servo amplifier that reflects the LASER beam to form continuous image on smoke screen.
- Fabricated Servo amplifier on PCB deploying op-amps and coupled it to PD Controller circuit with capacitive feedback.
- Depth of 2D image on smoke screen was controlled using LASER Intensity control circuit.

Arduino and 8051 Micro-Controller | The Maharaja Sayajirao University Aug 2015-Mar 2018
- Constructed a RC- Car using Bluetooth module HC-05 and Arduino that can be operated with smart phone or laptop.
- Interfaced 2 stepper motors in X and Y direction employing 8051 microcontroller to draw different geometric shape.

Real Time Sensor Data Collection App | University at Buffalo Aug 2019-Oct 2019
- Formulated & presented an Android Application to collect real time sensor data and verify data.

LEADERSHIP EXPERIENCE:

Paramarsh-Ideas Infinite (A National Level Non-Technical Event of MSU-FTE)
- Spearheaded event with a footfall of 20000 and website hits of 50000 in a year.
- Led a team of 100 through partnership, sponsorship and event management domains.
- Shepherd Anti-Tobacco campaign in partnership with 'Faith Foundation' in University campus, under the banner of "Sanidhya-Awareness for Society" in order to spread awareness about the ill-effects of tobacco consumption.