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 — **August 2019–Feb 2021**
University at Buffalo, The State University of New York-Buffalo — *GPA* **- 3.85/4.00**
Bachelor of Engineering, Electronics Engineering — **August 2015-May 2019**
The Maharaja Sayajirao University of Baroda, India — *GPA* – **3.58/4.00**

SKILLS & TOOLS:

Soft Skills: Proactivity, Leadership, Management, Decision Making, Inquisitiveness
Languages: Python, C, C++, Assembly Language, Embedded C, VHDL, Verilog, System Verilog.
Tools: Cadence, Matlab, LABview, Eagle PCB designing, KiCad EDA, Vivado by xilinx, Android Studio.
Technical Skills: Neural Networks, Reinforcement Learning Linear Algebra, Linear & Logistic Regression, Fuzzy Logic.

VOCATIONAL TRAINING:

Engineering Intern, Siemens India Pvt. Ltd. May'18- July'18

- Researched and tested all the different type of temperature sensors & pressure gauges and their working.
- Acquiring basic knowledge of PLC performed ladder logic simulations on siemens simatic to optimize the design parameters.

ENGINEERING PROJECTS:

Output-Capacitorless LDO and A subthreshold voltage reference | University at Buffalo Jan'20-May'20

- Researched and designed an out capacitor-less low dropout voltage regulator in 90-nm CMOS Technology.
- Reference Voltage for LDO, Subthreshold Voltage Reference with scalable output voltage, was also designed.
- Cadence Virtuoso was used to perform different analysis and RTL-level logic and MOSFET-level layout was created.
- Significant improvement in Load & Line regulation, Temperature Compensation and lower Chip area was obtained compared to previous result. This resulted LDO for SoC usage.

Big Data Analytics and Image Recognition | University at Buffalo Jan'19-May'19

- 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 max accuracy.
- Employed a CNN based model for Image Recognition using the AlexNet architecture. Many tweaks were made in the existing CNN to get a better accuracy. Top-5 accuracy of around 68% was obtained for oxflower17 dataset.
- Various Machine Learning models like Reinforcement Learning, Q & double-Q learning, Transfer Learning and Convolution Neural Networks were employed.

FPGA Calculator Jan'20-May'20

- Built a FPGA Calculator using Basys3 board. VHDL as Language in Vivado tool was used for the project.
- The Calculator was able to perform simple Arithmetic operations as well as logic left shift between 2 decimal operands entered using slider switches. The operands 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 | M.S. University July'18-March'19

- Generated a virtual 3-D volumetric display from it's 2-D version on a smoke screen using LASER technology.
- For this we built LASER galvanometer scanner and closed loop Servo amplifier which reflects the laser beam to form continuous image on smoke screen. The Servo amplifier Board (PCB) was built using op-amps and was coupled to PD Controller circuit with capacitive feedback.
- Laser Intensity control circuit was built to control the depth of the 2D image on smoke screen.

Arduino and 8051 Micro-Controller | M.S. University 2015-2018

- Constructed a car using Bluetooth module HC-05 and Arduino which can be operated with smart phone or laptop.
- Interfaced 2 stepper motors in X and Y direction using 8051 microcontroller to draw different geometric shape on the graph lying on the chassis.

POSITION OF RESPONSIBILTY:

Paramarsh-Ideas Infinite (A National Level Non-Technical Event of MSU-FTE)
Member of permission department, Paramarsh-17 (2017 Edition)
Volunteering Team, Paramarsh-16 (2016 Edition)
Managed the Gujarat's Largest Non-Level Technical event **comprising 15 Events improving soft skills**.
As a member of Permission and Sponsorship department, interacted with respective heads of many companies.

CERTIFICATIONS:

Python for Everybody Specialization by University of Michigan
TensorFlow in Practice Specialization by deeplearning.ai

AREAS OF INTEREST:

Embedded system design, VLSI designing (VHDL & Verilog programming), FPGA logic design, Implementation of communication protocols, Eagle PCB designing, Data Analysis, Industrial Automation and Control, Instrumentation & measurement.