Vaibhav Murali

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EDUCATION

University of Southern California (USC) — **CGPA: 3.6/4.0**
Master of Science (M.S.), Medical Device and Diagnostic Engineering — Expected May 2019

SSN College of Engineering, Anna University — **CGPA: 8.01/10.0**
Bachelor of Engineering (B.E.), Biomedical Engineering — June 2017

TECHNICAL SKILLS

Languages	C, C++, Python, Bash Programming
Software	Arduino IDE, Atmel Studio, MATLAB, LABVIEW, LT-Spice, Eagle, Cadence Virtuoso
Hardware	Oscilloscopes, Signal Generator, Soldering, DAC, ADC, DMM, Electrical Safety Analyzers
Platform	Arduino, Intel 8051, Cadence Allegro, TI MSP 430, Solidworks, PIC, Raspberry Pi, BioRadio

EXPERIENCE

Electronics Engineer — June 2019
NOWDx Instrument Division (NID) — Los Angeles, CA

- Design of PCBs (Rigid & Flex, Multilayer PCBs) using Eagle & Cadence Allegro
- Creating test environment by making PCBs in-house using through-hole & SMD components
- Verification and validation of PCBs using Python & Bash programming
- Debugging electronic circuits using DMM & oscilloscopes
- Writing documents accoridng to 21CFR820 standard.

Engineering Intern — April 2019
NOWDx Instrument Division (NID) — Los Angeles, CA

- Responsible for testing of PCBs using python & bash programming. Also, responsible for collecting data & reporting issues to project manager

Laboratory Student- Digital MOS VLSI — August 2018
University of Southern California — Los Angeles, CA

- Design of circuits involving area, delay & power minimisation. Includes design, layout, extraction, simulation & automatic synthesis

Laboratory Student- Electrophysiology — August 2018
University of Southern California — Los Angeles, CA

- Involves the use of design principles for medical devices and instrumentation that interact with electrically excitable tissues of the body

Graduate Teaching Assistant — August 2018
University of Southern California — Los Angeles, CA

- Assisted in setting up, monitoring, grading exams & laboratory experiments in instrumentation laboratory and signal processing laboratory. Also, taken classes for engineering graduate students

PROJECTS

Cast Simulator

- Designing a model arm embedded with temperature and pressure sensors to provide real-time feedback to surgeons
- Working in collaboration with Children's Hospital Los Angeles (CHLA)

Design of Artificial Neuron

- Implemented Mealy Machine circuit using Cadence Virtuoso
- Involved flipflops & compound gates to replicate the firing of neurons

Laboratory Model of a Low-Cost Dialysis Machine

- Headed a team of three to model a low cost dialysis machine using refurbished materials & cost effective electronic components
- Engineered a machine that performs basic operations such as monitoring pressure, temperature & detecting air bubbles present inside blood drawn from patient

Design of ultrasound airflow transducer

- Developed an ultrasound transducer model in LT SPICE and simulated it
- Replicated model for three flow rates and observed linear relationship of volume over time

COURSEWORK

- **Graduate:** MOS VLSI Circuit design, BIO-MEMS and Nanotechnology, Applied Electrophysiology, Bioinstrumentation, Ultrasonic Imaging, Signals & Systems
- **Undergraduate:** Bio-Optics, Digital Image Processing, Analog and Digital Integrated Circuits, Neural Networks, OOPS & Data Structures, Biomechanics, Sensors & Measurements