VARUN MOTURI

Phone: (647)-518-4872   Email: moturivn@mcmaster.ca   LinkedIn: www.linkedin.com/in/varun-moturi

HIGHLIGHTS OF QUALIFICATIONS

- Enrolled in Computer Engineering Co-op Program at McMaster University.
- Excellent communication skills; both verbal and written.
- Efficient time management, prioritization and organizational skills.
- Thorough understanding of engineering principles and strong capacity for problem solving.
- Outstanding interpersonal and teamwork skills attained through employment, academic and volunteer experiences as well as an ability to work well under minimal supervision.
- Awarded Jim McQueen Excellence in Education for exceptional involvement and service to the school.

EDUCATION

Bachelor of Computer Engineering ....**Expected Completion: 2019**
McMaster University, Hamilton, ON
- Awarded McMaster Entrance Scholarship for exemplary marks in secondary school.

TECHNICAL SKILLS

Altera-DE2 FPGA	PCB Analysis and Assembly	AutoCAD
Arduino	Machine Shop Tools	HTML & CSS
PIC Microcontroller	Computer Hardware Assembly	C/C++
PLC	Verilog HDL/VHDL	JAVA
Esduino	MATLAB	Eagle 7.5
Freedom K64F Board	Linked Lists, Stacks & Queues	PSpice
Soldering	Data Structures	Microsoft Office

ACADEMIC EXPERIENCE

Hardware Implementation of Image Decompressor, [Comp Eng. 3DQ5]....... [Oct 2016] – [Nov 2016]
- Designed a hardware circuit in Unix platform to decompress a 320 x 240-pixel image using VHDL.
- Developed an algorithm for lossless decoding and dequantization based on the prefix codes stored in the SRAM
- Preformed Inverse Discrete Cosine Transform (IDCT) of 8 x 8 matrices in hardware using finite state machines and 2 multipliers with 95% efficiency.
- Performed Interpolation and Color space conversion of the compressed data using only 3 multiplier components attaining 85% efficiency.
- Used the Altera-DE2 FPGA board to send the compressed data via UART interface and stored it in the SRAM.
- Developed a VGA interface to display the decompressed data on a monitor.

Pacemaker Project, [Software Eng. 3K04] ....[Sept 2016] – [Nov 2016]
- Worked in a group of seven to implement a pacemaker algorithm
- Read many documentations on heart beats and pulses to understand the limitations of the voltages limits that a heart can handle.
- Developed a user interface on MATLAB and programmed the atrial and ventricular pacing states on mbed software using the pacemaker hardware and Freedom K64F microcontroller.

Analog to Digital Signal Converter, [Comp Eng. 2DP4]...................................[Feb 2016] – [April 2016]
- Used a photoelectric resistor as a transducer to send analog signals.
- Built a preconditioning circuit using LMC662 CMOS dual op-amp to set limits to the voltages.
- Preformed theoretical analysis such as calculating bus speed, PLL clock frequency and baud rate.
- Implemented an ADC algorithm in Assembly language using the Esduino microcontroller.
- Used software tools like 'Relaterm' and 'Matlab' to Serially communicate and display data on the computer.

Human Reaction Timer, [Comp Eng. 2DI4]... [Oct 2015] – [Nov 2015]
- Implemented a pseudo random number generator using d-flip flops and used it as a stimulus.
- Used K-maps and JK – flip flops to implement a hundredth of a second counter.
- Programmed the machine using VHDL and PLCs.
- Wrote a technical report on the engineering design and design choices of the machine.

Everyday Assist Device, [Engineer 1P03] ....[Sept 2014] – [Nov 2014]
- Took upon a leadership role in designing an ignition modification device to assist a stroke victim who had physical limitations whilst working successfully in a group of four.
- Designed the device using professional design principles.
- Used AutoCAD to model the device and 3D printed via NetFabb.
- Created a professional online portfolio on the ignition modification device.

WORK RELATED EXPERIENCE

McMaster Solar Car Project..[Sept 2015] – [Present]
[Electrical Member and Secretary]

- Worked in a team of 15 students to build a solar car from scratch and represent McMaster University in an international competition (Formula Sun Grand Prix).
- Built a digital thermometer that converts analog values to digital values and displays the readings on a LCD. Programmed the Arduino using I^2C and serial communication to transmit the signals to the LCD.
- Built a laser tripwire that triggers the alarm when it senses any movement in its surroundings. Built the circuit using MOSFETS, Arduino microcontroller and PIC18F2550 chip.
- Built the light control circuit and strobe lights in a group of three. Designed the circuits in EAGLE 7.5 and soldered more than 50 electric components to the PCB.
- Attained knowledge on CAN bus, Battery Management System, telemetry and MPPTs.
- Represented the Solar Car to a vast number of audience in the International Auto Show (2016).
- Raced the Solar Car among 20 teams at FSGP 2016 in Pennsylvania.

Simulink Water Treatment Plant.. [Oct 2016] – [Nov 2016]
- Control Engineered a water treatment plant using Simulink.
- Preformed thorough research on the behavior and the mathematical components of a water treatment plant.
- Implemented complex first order and second order differential equations.
- Concatenated equations to make stages such as grit chamber, coagulation basin, sedimentation basin and grit filter.
- Visually represented the step by step filtering process of water.

Web Development..[Sept 2016] – [Oct 2016]
- Designed a web page that can be used as an online portfolio.
- Programmed the content in HTML using link tags, image tags, opening and closing tags.
- Controlled the layout of the webpage using CSS.
- Applied various concepts like text alignment, opacity, padding, font, size and color.

ACTIVITIES AND INTERESTS

ACTIVITIES:
- **Student Member**, Professional Engineers Ontario
- **Student Member**, Ontario Society of Professional Engineers
- **Student Member**, McMaster Jaguars Dance Group

INTERESTS:
- Computer Vision
- Networking & Security
- Artificial Intelligence
- App Development
- Machine Learning
- Parallel Programming
- Automobiles
- Dance

REFERENCES AVAILABLE UPON REQUEST