

BELAL QUAMAR

+1 (226) 961 0550 belalquamar@gmail.com [LinkedIn](#) Toronto, ON

EDUCATION

University of Windsor, ON **Sep 2022-May 2024**
Master of Applied Sciences in Electrical & Computer Engineering **CGPA 3.9/4.0**
Coursework: Reconfigurable Computing, Hardware Security, Computer Arithmetic, Connected Autonomous Vehicles

Integral University, Lucknow, India **Jul 2012- Jun 2016**
Bachelor of Technology, Computer Science & engineering **CGPA 3.4/4.0**
Coursework: Real Time Systems, Embedded Systems, Distributed Systems, Fuzzy Logic and Neural Networks, Pattern recognition, Automata & Formal Language, Operating System Fundamentals

TECHNICAL SKILLS

- **Languages:** VHDL, System Verilog, C C++, Python, MATLAB, TcL, Perl, Shell
- **Tools:** Xilinx Vivado, Quartus Prime, Git, Jira, Visual Studio, MATLAB, Shell, Linux, Windows
- **Communication Protocols:** PCIe, DMA, SerDes, UART, SPI, I2C
- **FPGA/ASIC design:** RTL, Testbench, Hard IP Integration, Synthesis, Simulation, SW Integration

RESEARCH EXPERIENCE

Master's Thesis – Hardware Acceleration of a Web Server using FPGA **Jan 2023 – May 2024**
University of Windsor, ON

FPGA Design: Quartus Prime Pro, VHDL, TcL, Groovy (Jmeter), PCIe, Cyclone 10GX

- Designed an Accelerator using Intel Cyclone 10GX to accelerate compression and encryption in NGINx.
- Utilized Intel's FPGA tools and Hard Ips to create PCIe communication between the two.
- Created Groovy Test Cases, C++ and Shell Scripts to evaluate efficiency.
- Integrated a variety of IPs from Intel, Xillybus etc. to create the whole Hardware.
- Achieved a 61% acceleration in compression Tasks and 54% acceleration in Encryption Tasks

PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant University of Windsor, ON **Sep 2022-May 2024**

Tools & Technologies: VHDL, MATLAB, C++, Quartus Prime, Questa, Python

- Assisted in Teaching Embedded Systems, Reconfigurable Computing, Analog Communication, Electrical Fundamentals and Physics.
- Created login Designs in Xilinx Vivado using VHDL and Verilog along with 8 project designs.
- Took Weekly Labs & Tutorials for more than 100 students each semester along with assignments & projects.
- Achieved an average of 98.93% passing percentage and 12% increase in average score.

Software Engineer – D.K Infosolutions, Lucknow India **November 2016- August 2022**

Tools & Technologies – Linux, ESP, STM32, CAN, Eagle, Fusion360, RFID, AWS Shell, Docker, MySQL, NGINx, Php

- Worked on a variety of hardware projects using ESP and STM32s for in-house-developed control modules.
- Worked as a cloud administrator during the initial phases of work.

CERTIFICATIONS

Fundamentals of VHDL & FPGA Development: Udemy

- Field Programmable Gate Arrays (FPGA), UART, I2C, XADC, MicroBlaze MCS

Verilog for an FPGA Engineer with Xilinx Vivado Design Suite: Udemy

- Verilog Programming, RTL, IPs, Logic Analyzer, DA4 DAC, PWM, BIST

PCI-Express Development with FPGA: Udemy

- PCIe IP implementation on Xilinx and Altera Tools, PCI Express Packet Analysis

PROJECT PORTFOLIO

Arithmetic and Logic Unit

- Design, Simulation and Implementation of a 8 bit ALU based on 8 bit unsigned binary numbers using Verilog

Moodle Server Administrator

- My area of expertise is setting up, running, and maximizing Moodle settings to guarantee smooth, safe, and effective online learning for businesses and educational institutions.

Self-Driving Car

- Used OpenCV to implement real-time object identification on a raspberry pi which improved the autonomous navigation skills of a small car by precise and effective environmental awareness.

Tiger Identification through Image Processing using MATLAB

- Created sophisticated algorithms using MATLAB for precise tiger identification, greatly advancing wildlife conservation initiatives with creative picture analysis methods achieving a 12% faster processing than previous models.

Linux Cloud

- Building and overseeing scalable cloud infrastructures to guarantee reliable, safe, and effective operations on several platforms and environments including the AWS Cloudflare and Digitalocean platforms.