FADI KATTO, EIT

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Education

Bachelor of Science, Electrical Engineering

Schulich School of Engineering, University of Calgary, GPA: 3.36   Sep 2018 – Apr 2021

Skills

General Design: Machine learning, PCB layout, Digital filters, 3D printing, Control systems, Networks
Software: ETAP, PowerWorld, PSpice/LTSpice, Simulink, Microsoft Office Suites, AutoCAD, EAGLE
Programming Languages: C, Python, VHDL, MATLAB, JavaScript
Tools: Git, NumPy, TesnorFlow, Anaconda, GNS3, I2C, SPI, SMD soldering, Arduino

Projects

Capstone Project: Machine Learning for High-Voltage Direct Current Valve Hall (AltaLink, FLIR)
- Developed CNN and Autoencoder models to identify temperature abnormalities in IR images (98% accuracy)
- Devised a framework to capture 10,000+ thermal images of a PC under different stress levels using a thermal camera to simulate the behaviour of semiconductors in a high voltage DC valve hall
- Implemented a packaged GUI for deployment to the client using Python Tkinter library

Handheld Gaming Device Using Printed Circuit Board
- Developed schematics for electrical components and appropriately connected terminals by researching chip manufacturer's datasheets
- Designed and procured a PCB using EAGLE to house hardware components (charging, USB-SPI conversion, power regulation) and soldered 0805 Surface Mounted Devices
- Solved programming and charging bugs using oscilloscope and multimeter
- Modelled and printed a 3D enclosure to house PCB, display, and battery using AutoCAD

Interactive Robot
- Collaborated with 3 members to design and construct an interactive pet robot capable of observing surrounding environment using ultrasonic, light, and microphone sensors
- Wrote C scripts to simulate emotions and interact with user using lights, speakers and servo motors
- Implemented wireless connectivity using nRF24L01 to diagnose functionality and interface with robot

SARS-CoV-2 Detection Using MATLAB
- Designed and trained a neural network using a backpropagation method to classify patients as SARS-CoV-2 positive or negative using a dataset available on Kaggle
- Cleaned data to remove irrelevant observations, handle missing data and filter unwanted outliers resulting in decrease in training time and network size, achieving 82% recall and 81% accuracy with cross-validation

Analyzing Packet Flows and ARP Spoofing Detection
- Set-up a Linux virtual machine inside Windows to install the necessary network applications and libraries
- Constructed a communication channel using Linux and used Wireshark to sniff UDP/IP packets over Ethernet LAN
- Used Wireshark to detect MITM hacker in a 5 computer Ethernet LAN by manually examining ARP commands
- Wrote a Python script using scapy library to detect the hacker by examining falsified MAC/IP addresses

Protection and Overcurrent Relay Coordination and Short Circuit Analysis Using ETAP
- Constructed an industrial substation and distribution system using Electrical Transient Analyzer Program

- Performed overcurrent relay coordination and selected appropriate relays to isolate the faulty part and minimize relay and circuit breaker operation
- Analyzed the effect of network topology and equipment specifications on the current magnitude during balanced and unbalanced faults to determine optimum characteristics of the power system protective devices

Waveform Generator Using PWM DAC For AM/FM Modulation

- Programmed an FPGA microcontroller using VHDL to implement adjustable waveforms using a distance sensor analog-to-digital converter program
- Implemented buttons and switches to allow switch between modes of operation and waveform adjustment
- Formulated a system to modulate AM and FM signals using Direct Digital Synthesis (DDS)

Volunteering and Activities

Board Director (Sports Committee), Northern Hills Community Association   Apr 2021 – Nov 2021

- Participated in Board discussions and decisions in matters of policy, finance, programs, personnel and advocacy on behalf of 57 000 residents in five communities
- Organized affordable and inclusive sports programs including Adult Slo-Pitch and Kids Field Hockey by seeking donations and sponsorships from local businesses
- Contributed to monthly newsletters by writing articles and provided publishable sporting events photos

Soccer Referee, NHCA Women's Soccer League   Jun 2017 - Aug 2018

Hackathon Programmer, Benevity's Code the Change   Nov 2019

Chorister, St. Mary Chaldean Church   May 2019 - Aug 2019

Work Experience

Cladding Installer

Igloo Erectors Ltd.   May 2018 – Aug 2018

- Safely installed siding/cladding products according to provincial specifications and codes
- Operated light metal-working tools to shape metal panels with the utmost respect for safety

Tax Professional

H&R Block Canada   Feb 2017 – May 2018

- Conducted interviews with clients to aid in preparing complete and accurate tax returns
- Resolved inquiries from clients and associates, both in person and over the phone
- Oversaw necessary additional research required to complete tax returns, including liaising with the Canada Revenue Agency
- Assisted associates in a team environment with the goal of enhancing client experience

Ramp Agent

Swissport   Sep 2017 – Apr 2018

- Marshalled aircrafts to and from gate positions with special attention to keeping flights safe and on schedule
- Ensured safe operation of ramp-servicing vehicles and proper handling of passenger baggage, freight, and mail in a busy, fast-paced environment

Tile Setter

P/G Flooring   May 2015 – Aug 2015

Lot Associate/Cashier

Home Depot   Sep 2011 – Jun 2013

Certifications

Arc Flash and Shock, PPE, Defensive Driving, WHMIS, Health and Safety Awareness, Fall Protection, Fire Extinguisher Safety, Hazard Recognition, Violence and Harassment in the Workplace, Workplace Incident Investigation, Pandemic Awareness, Ladder Safety, Mobile Elevating Work Platforms, Indoor/Outdoor Cranes, Lock Out/Tag Out, Confined Space, Asbestos Awareness