NAVRAJ SINGH KAMBO

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CAREER OBJECTIVE

To obtain an engineer-in-training position as a junior controls engineer or power systems engineer to expand my skill sets in the industrial controls, automation, and power industries, while applying the concepts I have learned in the classroom and laboratory settings at BCIT.

EDUCATION

British Columbia Institute of Technology, Burnaby *September 2015 - May 2019*
Bachelor in Engineering, Electrical Overall GPA: 85%
Graduated with Distinction

TECHNICAL STRENGTHS AND RELEVANT SKILLS

- Proficient with electrical hardware test equipment (DMMs, Function Generators, Oscilloscopes)
- Knowledgeable in AC (single and three phase) and DC electronic circuit theory
- Insightful in control theory, and industrial control system design (Siemens PLC and DeltaV DCS)

Modeling and Analysis AutoCad, SolidWorks, Fusion 360, MATLAB, LTSpice, git, SKM, ETAP
Software & Tools MS Office, LaTeX, Altium Designer, Python, C++, JavaScript, Verilog

PROJECTS

Autonomous Vineyard Harvesting

Our senior engineering capstone group aimed to improve on current grape picking systems by developing a robotic vehicle that can harvest grape crops autonomously and selectively. It was required to navigate a vineyard without the need for human intervention, work during all times of the day, and successfully detect and harvest wine grape crops using cutting-edge vision technologies, robotics, and various engineering methods we've acquired at BCIT.

Heat Exchanger Modeling and Controller Design

As part of the Industrial Control Systems course at BCIT, I was tasked with designing a temperature-flow cascade control strategy to regulate the outlet water temperature of a particular gas-liquid heat exchanger, incorporating disturbances such as steam header pressure, inlet water temperature, and water flow-rate. After a series of bump tests, I created a model of the heat exchanger and controller in a DeltaV virtual machine that could be downloaded to a DeltaV DCS and HMI.

Automated Writing Utensil

For my embedded systems term project, I designed and implemented a simple P-D controller for two Quanser SRV02 motors using a real-time embedded system (*TMS320F28027*). Parts were fabricated (PLA printing) to allow a pen to draw anywhere within a $36 in^2$ square. This project involved interfacing the RTES to external hardware including power amplifiers and quadrature encoders, through the use of various communications standards (SPI & SCI for example).

Self Driving Maze Navigation Car

In a group of 2, my partner and I were able to design and implement a self driving car that was able to solve a maze. The maze included colored markers to indicate turning directions, requiring the use of computer vision. We were constrained to using specific hardware (Raspberry Pi 3 Model B and given motors) but decided to use additional IR sensors and a custom 3D printed chassis to optimize our navigational speed. A custom PCB was assembled to hold components needed for the vehicle.

WORK EXPERIENCE

British Columbia Institute of Technology, Burnaby *May 2018 - August 2018*
Research Intern

- Worked on the NDART project under supervision of Dr. Neil Cox, and Dr. James Booth
- Created a working prototype of a cross-platform mobile application (iOS Android) for use in Haiti on concrete bricks
- Carried out peak-finding algorithm development associated with concrete testing
- Implemented and debugged time-domain impulse detection algorithm for mobile devices
- Learned the React-Native extension of JavaScript, and basic Java

Wireless Technical Services Inc., Coquitlam *April 2017 - August 2017*
Co-op Student

- Worked on the Fortis BC Radio Network (FBCRN) project, including helping point out a possible vulnerability using software defined radio (SDR) technology
- Designed and implemented software in python for network device convenience and maintenance
- Carried out Rack Acceptance Tests (RATs) for quality assurance purposes
- Worked with various hand and power tools when manufacturing a communications rack

BKS Cablecom Ltd., Burnaby *May 2016 - August 2016*
Jr. Technician

- Installed, and tested data cabling for data and voice systems
- Labeled and assembled patch panel assemblies, and upgraded wireless networking equipment
- Terminated AMP and Belden shielded/unshielded category cables with proprietary tools
- Worked along side Sr Technicians, Electricians and UBC IT services on various projects
- Learned and applied de-facto standards in the telecommunications installation industry

VOLUNTEER EXPERIENCE

Guru Nanak's Free Kitchen, East Vancouver *September 2013 - Present*
Dishwasher

- Serving lunch to residents of Vancouver's downtown east side
- Assisting with washing and cleanup before and after lunch
- Working along side church and community center staff

ACADEMIC ACHIEVEMENTS

- 2019 BCIT Student Innovation Challenge: 2nd place
- 2018 NSERC Undergraduate Student Research Award (USRA) recipient
- 2017 APEGBC Scholarship recipient
- 2015 Burnaby Central Alumni Scholarship, Top student Electronics 10 and PE 12
- 2014 Vancouver High School Science Olympics Eastern league event: 1st place

EXTRA-CURRICULAR INTERESTS

- Snowboarding
- Playing and watching soccer
- 3D printing knick-knacks
- Participating in the Sun Run
- Road and mountain biking enthusiast