

AMANPREET SINGH NIJJAR

Fourth Year Computer Engineering Undergraduate Student

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SUMMARY OF QUALIFICATIONS

- President of AUVIC: Leading a 15-member team to build an autonomous underwater vehicle (AUV).

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RELEVANT COMPETENCIES

Communicating Ideas and Presentation

- Created an electrical overview of AUVIC's embedded system to show the power requirements and communication buses to people.
- Organized meetings with representatives of Huawei, Rainhouse, Ocean Networks Canada, among others to discuss sponsorships and donations to AUVIC's project.
- Created PowerPoint presentations on AUVIC's submarine and presented them to funding committees.

Electrical Design on Altium Designer

- Built a USB-to-CAN dongle that can connect a computer running linux or windows to read/send messages from the CAN bus.
- Built a pinging device that can send 25kHz, 30kHz, 35kHz, and 40kHz signals through a piezo electric transducer to test hydrophones.
- Designed a circular-polarized patch antenna for a bluetooth module.

Control Communications and Electrical Systems

- Implemented CAN communication between nodes on an autonomous underwater vehicle. This design decentralized the system, allowing messages to be broadcast to all nodes, instead of point-to-point connection with USB.
- Analysed a power distribution system for my electric power systems class. I used Matlab to run a Newton-Raphson and Gauss-Seidal algorithm to solve for missing voltages and reactive power. Moreover, I used PSSE to verify my algorithms.
- Designed a linear weight-shifting system for my electric drive class. Using the specifications my professor was given when he completed the task, my team came up with a valid solution using pulleys.

PERSONAL PROJECTS

Haze Removal - C++ Image Processing

This command line application removes fog and haze in images by using dark channel prior and several other filters. Created from Rachel Yuen's (UW-Madison) matlab script. The Robot Operating System lacks Matlab support, so I rewrote the script in C++ to test it on AUVIC's AUV.

Audio-Effects PCB - C Signal Processing

An embedded application for the STM32F0xx discovery board. This board takes an audio signal and then filters it with a butterworth filter before entering the ADC on the STM. The STM then applies either an echo or pitching effect to the signal via buttons before being sent out of the DAC to be played through a speaker for everyone to enjoy.

WORK EXPERIENCE

Junior Electronics Engineer Co-op Autonomous Underwater Vehicle IC (AUVIC)

May 2020 - Ongoing Victoria, BC

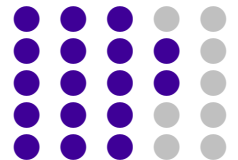
- Quality Control: Introduced continuous integration with Github Actions and agile workflows with Jira.
- Software Development: Wrote C++ and Python code to enable the main computer to send/receive data from the CAN bus.
- PCB design: USB-to-CAN dongle | Pinger

VOLUNTEER EXPERIENCE

- Ship2Shore: Ran an activity for middle school students who are interested in engineering.
- Homeshow: Organized office papers and maintained records.
- Ridge Meadows College: Taught ESL to adults.

SKILLS

Project Records
Attention To Details
Learning Ability
Altium Designer
Programming



EDUCATION

Bachelor of Computer Engineering University of Victoria

Sept. 2016 - Ongoing Victoria, BC

Relevant courses: Not Applicable

QUALITIES



Persistence

I went from a substitute basketball player to a starter in a single year.



Bilingual

Fluent in English and Punjabi.



Modding Cars

Installed an aftermarket sound system.

EXTRA QUALIFICATIONS



Work Availability

4 months



MS Office

Proficient with Excell, Word, OneNote, and PowerPoint.