Tom Sloan
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https://github.com/TomSloan?tab=repositories

28 December 2019

Dear HR Manager,

I am a third-year computer systems engineering student at Carleton University in Ottawa, Canada seeking employment in the high-tech sector starting end of April 2020. I am particularly interested in satellites and space technology.

For my stage of career, I have a significant amount of computer systems engineering work experience. Since May 2018 I have been working directly for Dr. Rafik Goubran in the University's Digital Signals Processing Laboratory, full-time in summer 2018 and summer 2019, and part-time throughout the 2018/19 academic year and now the academic year 2019/20. I am very familiar with General Purpose Test Equipment, hardware and software architectural concepts, several communication protocols on both Wi-Fi and Bluetooth, and the C/C++ and python languages.

My work experience has allowed me to work both independently and with a team, and to solve problems in several areas. The first project I worked on involved working in a team, building and designing an inexpensive non-invasive monitoring system. I am helping provide an easy method of monitoring several vital and health markers, including heart rate, respiration rate, and early cognitive impairment; designing the printed circuit boards; and, writing a large portion of the code. The second project is a personal project where I worked independently to design and build a smart home system that integrates several different smart devices. I wrote the code for the devices, mostly in C, C++, and python; designed the PCB and hardware, gaining valuable experience using General Purpose Test Equipment, such as voltmeters, ammeters, and oscilloscopes; and, determined how the many components worked together in the system and how to debug for faulty parts. I took detailed notes on my process to reduce errors in the future.

I have maintained an A- average through the first two and a half years of my program. My academic experience has provided me with the opportunity to develop strong communication skills and I have excelled in classes involving presentations and reports. I have taken several courses where the primary programming language is MATLAB and have performed well. In the upcoming semester, I will be taking a course on communication theory.

I am motivated by challenge and achievement and I constantly seek to increase my knowledge and refine my skills. I believe a better world is one that is more connected, something that LEO Satcom will only facilitate I would welcome the opportunity to work at Telesat.

Sincerely,
Tom Sloan

Curriculum Vitae

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EDUCATION

Bachelor of Engineering in Computer Systems Engineering *September 2017-Present*
Carleton University, Ottawa, Ontario

- Third Year Standing, A- average, will complete my third year by May 1, 2020
- $2,000/year scholarship for 4 years (have achieved necessary grades to maintain my scholarship)
- $6,735 Natural Sciences and Engineering Research Council of Canada Undergraduate Student Research Award
- $1,000 Faculty of Engineering and Design Scholarship

APPLIED PROJECTS

Internet of Things project application, Independent Project *May 2018 – Present*

- Designed and built a printed circuit board with a very small footprint for a fitness tracker.
- Made a Smart Home using a Raspberry Pi using python, and AWS.
- Wrote applications that allow easy control of the IoT devices from an iPhone
- Incorporated Firebase into the iPhone application to provide authentication, storage, and machine learning capabilities
- Used a machine learning algorithm (Support Vector Machine) to count steps and estimate the desired IoT device to be controlled when the app is opened
- Designed many CAD models using Fusion 360 for varying applications, including a Smart Home case, a fitness tracker, and molds to make silicone wristbands
- Designed, built, tested and demonstrated many different devices that could be automated or controlled over Bluetooth and Wi-Fi with easy to use applications on both iOS and android operating systems resulting in systems that could be used to assist seniors in daily life
- Built numerous Internet of Things projects with a wide variety of hardware with and without Arduino using several different sensors and wireless connections methods using C, C++, and python
- Created testing scripts of several projects using C and C++ to ensure the reliability of both the software and hardware designs
- Portions of the project can be viewed on GitHub

RTanks, Team Leader, *September 2019 – December 2019*

- As the team leader, I led the hardware design of a set of homemade RC cars that played laser tag.
- Used an Adafruit Bluefruit to control a series of motors, stepper and servo, and IR emitter and receivers
- The project can be viewed on GitHub

Reverse Engineering Project, Team Leader *September 2017 – December 2017*

- As the team leader, I led the design for a tool for coffee pod conversion between different capsule-based brewing systems in cad using Creo on PC and proceeded to 3D print the tool in a material that is food safe
- Organized the team into separated functions with specific demands resulting in a high-level project completed ahead of schedule

SKILLS

Technical

- Programmed using MATLAB for data analysis on research projects
- Programmed many embedded systems projects such as a Fitness Band, an Automated Plant Pot, a Smart Lights, and a Smart Blinds that supported either BLE or Wi-Fi connectivity using C/C++
- Programmed with Swift to make an iOS application with BLE and NFC functionality, integrated with the Firebase database
- Programmed in Python to make a Machine Learning algorithm that provides step recognition
- Created CAD models in Fusion 360 that were then 3D printed to make working prototypes for many projects
- Created an online database using Firebase to integrate user accounts that are accessible across platforms
- Designed PCBs in Altium and Circuitmaker
- Created games using GUIs, JavaFX, and Observables in Java

Teamwork Skills

- Worked in a team to create devices that improve the living standards of seniors
- Worked as team leader to design a tool for coffee pod conversion between different capsule-base brewing systems

Problem Solving Skills

- Worked independently to create a smart home system that contains devices with a wide range of functionality

WORK EXPERIENCE

Researcher Carleton University, Ottawa *May 2019 – present*

- Designing and building the hardware for systems for non-invasive monitoring of key health markers of older adults, such as heart rate monitoring, respiration rate, and body fluid flow
- Wrote software to analyze the effectiveness of said hardware using MATLAB

Researcher Carleton University, Ottawa *May 2018 – April 2019*

- Operated independently to find applications of using Arduino and the Internet of Things to improve the lifestyles of seniors. Focusing on usability and dependability, this resulted in automated devices that can be controlled by Bluetooth or over Wi-Fi
- Wrote the software that allows for easy control of those devices for iPhone and android application built with Qt
- Analyzed the work of co-workers and created presentations of their technology, allowing the laboratory to demonstrate the technology to many interested parties

NOTEWORTHY ACCOMPLISHMENTS

- Black Belt in Karate
- Completed Canadian Securities Course
- Grade 7 Royal Conservatory of Music for piano
- Aquafitness Instructor *June 2016 – Dec 2017*
- Lifeguard and Swimming Instructor *May 2015 – Dec 2017*

AVAILABILITY

I am available for 4-16 months beginning May 2020

References available upon request

COURSES COMPETED

Course	Course Name
Year One:	
CHEM 1101	Chemistry for Engineers
ECOR 1010	Introduction to Engineering
ECOR 1101	Mechanics 1
MATH 1004	Calculus for Engineering and Physics
MATH 1005	Differential Equations and Infinite Series for Engineering or Physics
MATH 1101	Linear Algebra 1
PHYS 1003	Introductory Mechanics and Thermodynamics
PHYS 1004	Introductory Electromagnetism and Wave Motion
SYSC 1005	Introduction to Software Development
SYSC 2006	Foundations of Imperative Programming
Year Two:	
ARTH 1101	Art History: Renaissance to Present
CCDP 2100	Communication for Engineers
COOP 1000	Co-op Course
ECOR 2606	Numerical Methods
ELEC 2501	Circuits and Signals
ELEC 2507	Electronics 1
ERTH 2501	Natural Disasters
MATH 2004	Multivariable Calculus for Engineering or Physics
MATH 3705	Mathematical Methods I
SYSC 2004	Object-Oriented Software Development
SYSC 2100	Algorithms and Data Structures
SYSC 2310	Introduction to Digital Systems
SYSC 2320	Introduction to computer organization and architecture
Year Three:	
ECOR2050	Design and Analysis of Engineering Experiments
SYSC 3999	Co-op Work Term
SYSC 3010	Computer Systems Development Project
SYSC 3020	Introduction to Software Engineering
SYSC 3310	Introduction to Real-Time Systems
SYSC 3600	Systems and Simulation
SYSC 3800	Engineering Economics

COURSES REGISTERED WINTER 2020

Course	Course Name
Year Three:	
SYSC 3303	Real-Time Concurrent Systems
SYSC 3320	Computer Systems Design
SYSC 3501	Communication Theory
SYSC 4001	Operating Systems
TSES 4012	Science & Fiction: Creating Tomorrow