



# Gabriel Soares

gabriels@sfu.ca | 778-918-2612 | 3018 Delahaye Dr, Coquitlam, V3B 6V8

## Education

Mechatronic Systems Engineering, SFU Surrey	2014 - Present
CGPA - 4.23	
International Baccalaureate Diploma	2010 - 2014
Ministry of Education Dogwood Diploma	2010 - 2014

## Skills

### *Mechanical*

- Able to analyze normal and shear stresses in trusses and axially loaded members
- Comprehensive Thermodynamic and Heat Transfer Analysis
- Computational Fluid Dynamic Analysis
- Capable of analyzing shear forces and bending moments in loaded beams

### *Communication*

- Fluent in English, French, and Portuguese.
- Demonstrated leadership and mentorship skills.
- Outgoing and able to work well with others.

### *Software*

- MATLAB
- Solidworks
- C++, C, Robot C
- COMSOL Multiphysics Simulation
- CES EduPack Materials Engineering

### *Bonus Skills*

- Avid connoisseur of math history
- Capable of solving a rubik's cube
- 40 digits of pi committed to memory

## Technical Experience

### *Research Engineer at Torus Biomedical Solutions* May 2016 - Present

- Analyzing 3D rigid body tracking and calibration data for a camera to aid in spinal and orthopaedic surgeries
- Analyzing data in MATLAB to cluster, filter, and interpret the errors in camera tracking
- Optimization, interpolation, and direct linear transformation techniques to establish relative coordinate frames in 3D and obtain accurate comparisons to a known benchmark
- Object Oriented Programming and graphical user interface design in MATLAB

### *Inverted Pendulum and System Dynamics Project* May 2016 - Present

- Designing and building an inverted pendulum stabilizer with feedback control
- Use of Lagrangian mechanics to derive the equations of motion and form a linear state space model in MATLAB to apply modern control to the system
- Tuning a PID controller to optimize the response of the system to minimize rise time, steady state error, overshoot and oscillation
- Real-time embedded system data acquisition of encoder data through an arduino, using interrupts and building custom s-functions in Simulink



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## *Western Engineering Competition - Junior Design*

January 2016

- Successfully competed in a nationally recognized engineering competition at UBCO
- Designed a working prototype of a distress signal device capable of cooking meals
- Proposed a business model for the product, and outlined marketing, manufacturing and distribution plans to a panel of judges

## *EV3 Lego Robotics Design*

May - August 2016

- Built an autonomous SUMO bot to compete with other robots in a ring of death
- Developed an original artificial intelligence algorithm for robot tic tac toe playing against a human opponent, resulting in an undefeated AI player
- Used MATLAB to smoothen noisy data using a moving average and analyzed the data with numerical differentiation and peak detecting in the context of reading a barcode

## Non-Technical Experience

### *Pajo's Fish and Chips*

July - September 2014

- Prepared and delivered hot food as a fish, grill, and fry cook
- Worked as a cashier, handling money and receiving orders from customers
- Completed miscellaneous tasks around the restaurant

### *Co-President of Amnesty International Establishment*

2013 - 2014

- Raising awareness of human rights at Port Moody Secondary School
- Planning, organizing and executing campaigns and community events, such as Talent Talks, a night of performances and talks on human rights issues open to the community.
- Talent Talks occurred Wednesday June 18 at the Port Moody Inlet Theatre, and featured UBC professor Andre Mazawi, speaking on social justice.

### *Member of Best Buddies Program*

2012 - Present

- Contributed to a global volunteer movement that creates opportunities for one-to-one friendships and leadership development for people with intellectual and developmental disabilities
- Experience building caring and positive friendships with mentally handicapped students in grades 9 to 12+

## Awards and Recognitions

- SFU IB Excellence Entrance Scholarship (\$7000)
- SFU Undergraduate Open Scholarship Spring/Summer/Fall 2015 (\$1600)
- SFU Dean and President's Honour Roll (Every eligible semester)
- Member of Golden Key Undergraduate Society