Rollen S. D'Souza

rollen.dsouza@uwaterloo.ca • github.com/rollends • rollends.ca

Publications

R. S. D'Souza and C. Nielsen, *Dual Conditions for Local Transverse Feedback Linearization*, IEEE Conference on Decision and Control, 2018. [Accepted]

V. Joukov, R. D'Souza and D. Kulić, *Human pose estimation from imperfect sensor data via the Extended Kalman Filter*, International Symposium on Experimental Robotics, 2016. [Published]

Academic Work Experience

Teaching Assistant 2017/09—2018/08

Assisted with Software Engineering courses SE101 and ECE459. Also assisted with the Signals and Systems course MATH213.

Undergraduate Teaching Assistant 2016/09—2017/04

Assisted students in the first year SE101 course. Also was a teaching assistant for the SE465 Quality Assurance course. Duties included managing a weekly 2-hour lab section, marking weekly quiz submissions as well as a final course project. Engaged with students through Piazza and office hours.

Undergraduate Research Assistant 2016/05—2016/08

Supervised by Prof. Dana Kulić.

Undergraduate Research Assistant 2015/01—2015/04

Implemented real-time inverse kinematics algorithm for human motion capture data. Supervised by Prof. Dana Kulić.

Industry Work Experience

Medical Software Developer Co-op 2015/09—2015/12

Sunnybrook Health Sciences Centre

C++ Linux and Windows Application development contributing to the Vurtigo image-guidance visualization software for cardiac interventions.

Software Development Engineer Co-op 2014/05—2014/08

The Coalition Studio, Microsoft

Created tools to support design and development workflows in video games. Wrote rendering shaders and created a background loader for the Unreal Game Engine. Contributed to *Gears of War 3: Ultimate Edition* and *Gears of War 4* Xbox One video games.

Software Development Engineer Co-op 2013/09—2013/12

The Coalition Studio (formerly known as Black Tusk), Microsoft

Developed tools to report on runtime video game performance.

Multimedia Software Developer 2012/05—2012/08

University of Waterloo

Developed video conferencing software with an editable whiteboard using a Flash front-end and a Java EE back-end.

Honours and Awards

2018 ECE Teaching Assistant Award
2016 NSERC Undergraduate Student Research Assistantship (USRA)
2016 General Motors (GM) Innovation Award
2015 NSERC Undergraduate Student Research Assistantship (USRA)
2014 International Genetically Engineered Machine (iGEM) Competition — Best Model
2011 University of Waterloo President's Scholarship

Activities and Projects

Project: Comparison of Transverse Feedback Linearizing Controllers 2017/01—2017/04
SE499, University of Waterloo
Undergraduate research project investigating two different implementations of path following controllers. Supervised by Prof. Christopher Nielsen.

Project: Real Time Operating System 2016/01—2016/04
CS452, University of Waterloo
Implemented (hard) real time operating system in C, from the ground up, for the purpose of autonomously managing trains on a physical track.

Math Modeller 2015/01—2015/12
International Genetically Engineered Machine (iGEM) Competition - Team Waterloo
Developed and analyzed mathematical models of the CRISPR-mRNA interference mechanism alongside interdisciplinary team of mathematics, physics, engineering and biology undergraduate students. Main contribution consisted of performing global sensitivity analysis.

Volunteer First Responder 2015/01—2015/12
Campus Response Team, FEDS
Provided first aid services at student events and the student activity complex. Certified Standard First Aid/CPR-HCP.

Education

MASc ***(Candidate)*** Expected 2019/08
University of Waterloo
Current Student supervised by Prof. Christopher Nielsen.

BSE 2017/07
University of Waterloo
Honours Software Engineering, Joint Honours Applied Mathematics