

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

A teaching assistant for Software-related courses SE101 and ECE459 and a tutorial assistant for 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

Other Activities

Software Engineering Mentor 2018/09–Present

University of Waterloo, Program of Software Engineering

Part-time mentor for first year Software Engineering students in all courses that are deemed at need for a student.

Software Engineering Curriculum Committee Student Representative 2015/09–2016/04

University of Waterloo, Program of Software Engineering

Represented student body on matters regarding curriculum changes for future classes of Software Engineering.

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.

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.

Education

Ph.D (Candidate) (CGPA: 92.00) Expected 2022/08

University of Waterloo

Supervised by Prof. Christopher Nielsen.

BSE (CGPA: 77.35) 2017/07

University of Waterloo

Honours Software Engineering, Joint Honours Applied Mathematics.