

Cameron Devine Ph.D.

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🌐 CameronDevine

Research Interests

- Design and analysis of robotic systems including teleoperation and automated path planning.
- Modeling and control of material removal rate.
- Tools and models for reducing ergonomic risk during abrasive material removal processes such as sanding.

Employment

St. Martin's University <i>Visiting Professor, Hal and Inge Marcus School of Engineering</i>	Lacey, WA 2021–Present
University of Washington <i>Research Assistant, Boeing Advanced Research Center</i> Topic: Robotic sanding system design, software development, and testing.	Seattle, WA 2017–2021
Saint Martin's University <i>Peer Tutor</i>	Lacey, WA 2015–2016
SOAR Technologies <i>Engineering Intern</i> Topic: Mechanical design of small hydroelectric power turbines.	Redmond, WA 2014–2015

Education

University of Washington <i>Ph.D. in Mechanical Engineering</i> Advisers: Santosh Devasia and Joseph Garbini	Seattle, WA 2018–2022
University of Washington <i>Master of Science in Mechanical Engineering</i> Adviser: Joseph Garbini	Seattle, WA 2016–2018
Saint Martin's University <i>Bachelor of Science in Mechanical Engineering</i>	Lacey, WA 2013–2016

Patents

J Aubin, L McCann, A de Marne, T Rowe, G Davis, **C Devine**, T Piaskowy, and K Latimer. *Systems and methods for sanding a surface of a structure*. United States Patent Application No. 16/205,947. Filed November 2018.

Publications

In Preparation.....

R Picone, J Garbini, and **C Devine**. *Real-Time Computing for Mechanical Engineers: Introduction and Laboratory*. MIT Press.

C Devine, S Devasia, and J Garbini. *Spatially-Constant Material Removal Control on Convex Surfaces Under Variable-Speed Robotic Sanding*. (submitting to AIM 2023/IEEE TMECH)

Peer-Reviewed Journal Articles.....

B Parsa, E Samani, R Hendrix, **C Devine**, S Singh, S Devasia, and A Banerjee. *Toward ergonomic risk prediction via segmentation of indoor object manipulation actions using spatiotemporal convolutional networks*. IEEE Robotics and Automation Letters. 2019. DOI 10.1109/lra.2019.2925305.

R Picone, S Davis, **C Devine**, J Garbini, and J Sidles. *Instrumentation and control of harmonic oscillators via a single-board microprocessor-FPGA device*. Review of Scientific Instruments. 2017. DOI 10.1063/1.4979971.

Peer-Reviewed Conference Proceedings.....

C Devine, J Garbini, and S Devasia. *Spatially-constant material removal control under variable-speed robotic sanding*. ASME Manufacturing Science and Engineering Conference. 2020.

Thesis.....

C Devine. *Material removal control for teleoperated robotic sanding*. PhD thesis, University of Washington. 2022.

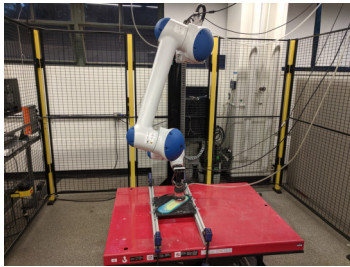
C Devine. *Material removal rate control for a teleoperated robotic sander*. Masters thesis, University of Washington. 2018.

Software.....

C Devine, J Garbini, and R Picone. *StateMint: a set of tools for determining symbolic dynamic system models using linear graph methods*. Journal of Open Source Education. 2019. DOI 10.21105/jose.00044.

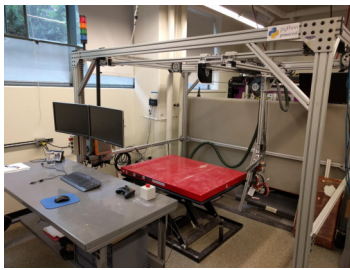
P Owan, **C Devine**, and T Piaskowy. *CoreRobotics: an object-oriented C++ library with cross-language wrappers for cross-platform robot control*. The Journal of Open Source Software. 2018. DOI 10.21105/joss.00489.

Experimental Research Platforms



2019–Present

An experimental robotic sanding system using a Yaskawa HC10 collaborative robot, FerRobotics ACF (not pictured), Intel RealSense L515 depth camera, 6in orbital sander, and ROS for control.



2017–2019

An experimental robotic sanding system using HEBI modular robotic actuators, RPLIDAR A2 lidar sensor, and 6in orbital sander.

Teaching

St. Martin's University

Lacey, WA

Visiting Professor

Spring 2023:

- Dynamics
- Machine Design
- Robotics

Fall 2022:

- Statics
- Manufacturing
- Mechatronics and Measurement Systems Laboratory

Spring 2022:

- System Dynamics and Control
- Control Systems I
- Embedded Computing for Mechanical Control
- Robotics

Fall 2021:

- Mechatronics
- Mechatronics and Measurement Systems Laboratory
- Engineering Analysis I: Mathematical Foundations
- Mechanical Engineering and Design Seminar

University of Washington

Seattle, WA

Teaching Assistant

Winter 2020:

- Embedded Computing

Autumn 2019:

- Automatic Control

Community Outreach

MathCounts
Volunteer

Redmond, WA
2010–2019