Carl Hildebrandt

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Education

2018 – Present	PH.D. candidate in Computer Science, University of Virginia, USA
	Advisor: Dr. Sebastian Elbaum
2013 – 2016	B.ENG. in Computer Engineering, University of Pretoria, South Africa

Research Interests

Intersection of autonomous systems, and software analysis. Focusing on the safety of autonomous systems through the validation and verification of their software.

Experience

2018 – Present	Research Assistant, Less Lab, University of Virginia
	URL: less-lab-uva.github.io
2017 – 2018	Research Assistant, Nimbus Lab, University of Nebraska
	URL: nimbus.unl.edu

Honours & Awards

2018	**IROS Best Paper Award on Safety, Security, and Recue Robotics**: Fire-Aware Planning of Aerial Trajectories and Ignitions.
2020	**Distinguished Artifact Award**: Feasible and Stressful Trajectory Generation for Mobile Robots

Publications & Talks

CONFERENCE PUBLICATIONS

2021	<u>Hildebrandt C</u>, Elbaum S. *World-in-the-Loop Simulation for Autonomous Systems Validation*. In 2021 IEEE International Conference on Robotics and Automation (ICRA) 2021 May 30.
2020	<u>Hildebrandt C</u>, Elbaum S, Bezzo N. *Feasible and Stressful Trajectory Generation for Mobile Robots*. In 2020 ACM SIGSOFT International Symposium on Software Testing and Analysis Proceedings (ISSTA) 2020 July 22. - **Distinguished Artifact Award**
2020	<u>Hildebrandt C</u>, Elbaum S, Bezzo N. *Blending Kinematic and Software Models for Tighter Reachability Analysis*. In 2020 IEEE/ACM 42nd International Conference on Software Engineering: New Ideas and Emerging Results (ICSE-NIER) 2020 July 6.
2018	Beachly E, Detweiler C, Elbaum S, Duncan B, <u>Hildebrandt C</u>, Twidwell D, Allen C. *Fire-aware planning of aerial trajectories and ignitions*. In 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2018 Oct 1 (pp. 685-692). IEEE. - **Best Paper Award**

PAPERS UNDER DEVELOPMENT

2021   Hildebrandt C, M Stein, Elbaum S, *Physical Coverage for Autonomous Systems*.

PATENTS APPLICATIONS

2020   **Carl Hildebrandt**, Jefferson Griscavage, Victor Aquino, Melony Bennis , and Tien Comlekoglu, Vuetech Health Innovations LLC, "Systems and Methods for Safety, Security and Well-Being of Individuals", Patent US63066296

TALKS

2020   **Carl Hildebrandt** "Feasible and Stressful Trajectory Generation for Mobile Robots", International Conference on Software Engineering, July 7 2020
2020   **Carl Hildebrandt** "Blending Kinematic and Software Models for Tighter Reachability Analysis", International Symposium on Software Testing and Analysis, July 21, 2020

Community Service

2021   Student Volunteer
        IEEE/ACM International Conference on Software Engineering (ICSE), May 25, 2021

Teaching

2021   Lab Designer and Guest Lecturer
        Robotics for Software Engineers, The University of Virginia, Spring 2021
2020   Lab Designer and Teaching Assistant
        Robotics for Software Engineers, The University of Virginia, Spring 2020
2016   Head Teaching Assistant
        Data Structures and Algorithms in Java, The University of Pretoria, First Semester 2016
2015   Head Teaching Assistant
        Program Design in C++, The University of Pretoria, Second Semester 2015
2015   Teaching Assistant
        Data Structures and Algorithms in Java, The University of Pretoria, First Semester 2015
2014   Teaching Assistant
        Introduction to Programming in C, The University of Pretoria, Second Semester 2014

Achievements

2019   National Club Field Hockey Champions - UVA
2017   Half Iron Man
2017   Comrades Ultra Marathon
2016   Summited Kilimanjaro
2012   National u18B Hockey Team