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 Hildebrandt C, 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 Hildebrandt C, 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 Hildebrandt C, 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, Hildebrandt C, Twidwell D, Allen C. *Fire-aware planning of aerial trajectories and ignitions*. In2018 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

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