Carl Hildebrandt

Curriculum Vitae

239 Montebello Cir, Charlottesville, 22903
+1 (619) 483-7447
hildebrandt.carl@outlook.co
hildebrandt-carl.github.io

EXPERIENCE

AUGUST 2018 - PRESENT

LESS Lab - Research Assistant

As one of the initial students of the newly formed lab, I played a key role in the setup of the lab. This included installing state of the art motion tracking cameras, installing custom networking, building and setting up a set of robots, managing the lab inventory, and developing of the lab website.

NOVEMBER 2019 - JUNE 2020

Vuetech - Head of Technology

I worked with an interdisciplinary team of medical students and engineers, leading the development of a video alert system that automates video monitoring using computer vision and machine learning to detect, predict, and prevent harmful events. The result of this work has led to the filing of a US patent, the beginnings of two studies at UVA's nursing department, and a startup company being formed. Due to my visa restrictions I am not allowed to partake in the formation of a startup company and thus I stepped down.

JULY 2017 - AUGUST 2018

NIMBUS Lab - Research Assistant

Initially I contributed to the lab by taking over a project from a graduate student who was leaving. I also contributed to the lab's set of aerial vehicle demonstrations by creating a drone which was able to reliably catch a ball thrown at it.

DECEMBER 2016 - JULY 2017

Cheesecake - Lead Web Integration Engineer

I was tasked with designing and implementing a web application that could connect to a NodeJS server which had previously been integrated with their mobile applications.

DECEMBER 2014, DECEMBER 2015

Vacation Work - Temporary Software Engineer

I conducted independent research and prototyping in using cloud storage as an alternative file repository for business software. Additionally I developed a Microsoft MVC 5 application using SQL Server, C# and Bootstrap on the Azure Platform in a pair programming context.

EDUCATION

2018 – PRESENT **Doctor of Philosophy Candidate**
Computer Science
University of Virginia

2013 – 2016 **Bachelor of Engineering**
Computer Engineering
University of Pretoria

ACHIEVEMENTS

2019 **National Club Field Hockey Champions - UVA**
2017 **Half Iron Man**
2017 **Comrades Ultra Marathon**
2016 **Summited Kilimanjaro**
2012 **National u18B Hockey Team**
2012 **Student Representative Council - High School**
2012 **Waterpolo First Team Captain - High School**

SELF IMPROVEMENT

PERSONAL **Patent Pending: us63066296**
System and Methods for Safety, Security and Well-Being of Individuals - 2020

COURSERA Quantitative Model Checking - 2019
Responsive Web Design - 2018
Neural Networks and Deep Learning - 2018

TEACHING

Robotics for Software Engineers - Lab Designer

I was tasked with developing the labs for this new course at the University of Virginia. This involved adapting and preparing two separate drone simulators as well the lab content. The labs covered concepts from an introduction to the Robotic Operating System (ROS) to more advanced concepts such as mapping and motion planning as well as reference frame transformations.

University of Pretoria - Head Teaching Assistant

I held numerous positions during my time at the University of Pretoria, with the highest being the head teaching assistant. I was involved with many courses including Introduction to Programming, Data Structures and Algorithms and Program Design.

PUBLICATIONS

Hildebrandt C, Elbaum S, Bezzo N. *Feasible and Stressful Trajectory Generation for Mobile Robots*. In2020 ACM SIGSOFT International Symposium on Software Testing and Analysis Proceedings (ISSTA) 2020 July 22. - **Distinguished Artifact Award**

Hildebrandt C, Elbaum S, Bezzo N. *Blending Kinematic and Software Models for Tighter Reachability Analysis*. In2020 IEEE/ACM 42nd International Conference on Software Engineering: New Ideas and Emerging Results (ICSE-NIER) 2020 July 6.

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**