Shawn Hanna

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Work Experience

Sr. Software Engineer, Kaarta   September 2018 – Present

Designed and developed state of the art improvements to Kaarta's software capabilities, focusing on real-time system accuracy and speed. Introduced new software engineering practices and developed test procedures used for deployment of software to hundreds of customers.

Head of Field Operations, Platypus LLC   April 2017 – September 2018

Managed field operations for Platypus' fleet of autonomous boats. In charge of manufacturing, repair, customer training and support, and engineering operations.

Senior Software Engineer, TORC Robotics   June 2014 – December 2016

Developed lidar, radar, and vision algorithms to improve TORC's perception capabilities. Implemented safety critical, real-time software on several unique platforms.

Research Intern, Caterpillar Inc.   August 2011 – September 2013

Worked on several hardware and software products to support Caterpillar's autonomous mining goals.

Projects

Kaarta - Mapping and Localization Algorithm improvements

Algorithm expert for the Kaarta Mapping Engine and developer of novel solutions for customers

Refactored, rewrote, and improved every step of the system that improved the speed and accuracy of Kaarta's mapping algorithms by up to 70%.

Platypus - Robotic Boat Fleet Manager

In charge of customer interaction, training, and field work for 40+ robotic boats

In charge of all areas of hardware build and customer facing work for the largest boat deployments conducted by Platypus. Engaged with customers from initial demonstrations through completion and assumed accountability for delivering the final product.

Astrobotics - Lunar Rover

Design, develop, and test a lunar rover for the Google Lunar XPRIZE

Team Lead for the software subsystem which created a robust software platform that satisfied all requirements for completion of the 2nd stage prize in simulated moon gravity, vacuum, and temperatures.

CMU - Heterogeneous Multi-Robot Navigation and Exploration

Create a heterogeneous multi-robot system where robots forage objects in an unknown environment

Designed a multi-robot system from scratch that solves a complex sensing and robot fusion task while utilizing proper business practices and strategies to create a marketable product.

Education

Carnegie Mellon University, Pittsburgh PA   Finished Dec 2014
Master of Science, Robotics Systems Development   GPA 3.59

University of Pittsburgh, Pittsburgh PA   Finished May 2013
Bachelors of Science, Computer Engineering   GPA 3.21

Skillset

- Robotic Perception
- Real-Time Mobile Robotics Applications
- Sensor Fusion
- Algorithm Design & Implementation
- SLAM
- ROS - Robot Operating System
- Non-Linear Optimization
- Hardware Driver Development
- Infrastructure Tool Design and Development
- Path Planning/Navigation
- Project Leadership
- Systems Engineering & Project Management
- Electronic Circuit Debugging
- LOAM - Lidar Odometry and Mapping
- Differential Equations and Linear Algebra
- User Experience Design
- Cloud Computing - AWS
- Computer Vision - Intermediate Level
- GPU programming - basics
- Machine Learning - theory
- Customer Service and Training
- Field Operations

Platforms and Utilities

ROS, OpenCV, BOOST, Ceres Solver, AWS, Docker, Android Studio, Qt, Visual Studio

Programming Languages

C++, Python, HTML/CSS/NodeJS/PHP/SQL/JavaScript, Java (and Android Studio), C#, Matlab, CUDA,
    Labview

Electronics & Mechanics

Soldering, Circuit Design, Motor Control, 3D Modeling, FPGA Design