GRISWALD BROOKS

Senior Robotics Software

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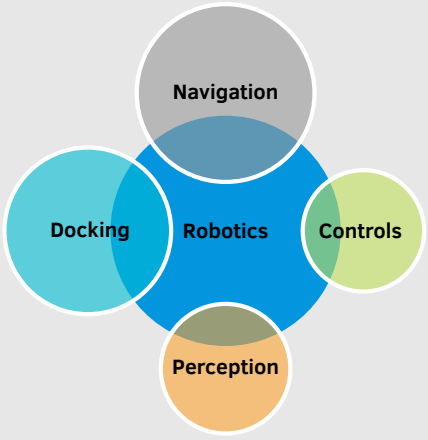
Technical Skills

Overview



Programming

C++

Python

Javascript

Education

MSc., Electrical Engineering
NYU School of Engineering
May 2015 | Brooklyn, NY

BSc., Computer Engineering
NYU School of Engineering
May 2013 | Brooklyn, NY

Experience

May 2018 - Present — **Senior Robotics Engineer** — Bossanova Robotics

- Managed navigation team and implemented agile workflow, increasing team predictability.
- Refactored navigation stack, increased test coverage, formalized refactor-for-test strategies.
- Implemented stuck retry logic and other navigation improvements to reduce operator touch time and enable large scale robot deployment.
- Created initial developer docker container.
- **Used**: TOF/LIDAR, C++, Python, ROS, Git, Jenkins, Gtest

Jul 2016 - May 2018 — **Robotics Software Engineer** — Neato Robotics

- Improved docking reliability and added features. Refactored infrastructure producing documented unit tested code.
- Evaluated multiple tof/stereo cameras for technology selection.
- Spearheaded automated on-robot testing. Built infrastructure for test fleet command and monitoring. Performed team level release engineering duties. Tested incremental builds. Released builds to SQA, beta testers, and production.
- **Used**: TOF/LIDAR, C++, Python, JS, QNX, Git, Jenkins, AWS, Catch2

Jul 2015 - Apr 2016 — **Robotics Engineer** — Fetch Robotics

- Developed EKF/LIDAR based tracking of people and mobile robots.
- Increased robustness of charge docking system through improvements in perception, navigation, and recovery behaviors.
- **Used**: ICP, EKF, C++, Python, ROS, Git, Gtest, LIDAR

May 2012 - Jun 2015 — **Robotics Engineer** — Farco Technologies

- Designed/built autopilots, skins, chassis and developed/tested embedded software for AGVs, AUVs, and UAVs.
- **Used**: Linear Filters, C, EDA, CAD, ARM, IMU, UART, I2C, CAN

Research

Jan 2014 - 2015 — **Graduate Research Assistant** — Control/Robotics Research Lab at NYU

Thesis: Projected Profile Humanoid Crawl Gait and Lidar Based Navigation using GODZILA

- Developed novel inverse kinematics crawling gait and potential field navigation using LIDAR/Nao; gradient descent-based IK solver for out-of-workspace end effector poses; LIDAR-based object detection/classification regressors.
- **Used**: IK, Optimization, Potential Fields, Linear Regression, C++, Matlab, Python, LIDAR, Sonar, Nao

Publications

G. Brooks, P. Krishnamurthy and F. Khorrami, **"Low-profile crawling for humanoid motion in tight spaces"**, Intelligent Robots and Systems (IROS), 2015 IEEE/RSJ International Conference on, Hamburg, 2015, pp. 5930-5935. G. Brooks, P. Krishnamurthy and F. Khorrami, **"A multi-gait approach for humanoid navigation in cluttered environments"**, The 26th Chinese Control and Decision Conference (2014 CCDC), Changsha, 2014, pp. 2708-2713. G. Brooks, P. Krishnamurthy and F. Khorrami, **"Humanoid robot navigation and obstacle avoidance in unknown environments"**, Control Conference (ASCC), 2013 9th Asian, Istanbul, 2013, pp. 1-6.