Griswald **Brooks**

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EDUCATION

NYU SCHOOL OF ENGINEERING

Masters of Science in Electrical Engineering
May 2015 | Brooklyn, NY

Bachelors of Science in Computer Engineering
May 2013 | Brooklyn, NY

LRCC

Associate of Science in Computer Technologies
Dec 2009 | Laconia, NH

LINKS

Github
github.com/griswaldbrooks

LinkedIn
linkedin.com/in/griswaldbrooks

Website
griswaldbrooks.com

COURSEWORK

GRADUATE

Sensor Based Robotics
Linear Systems
State Space Design
Applied Nonlinear Control
System Optimization
Machine Learning
Reinforcement Learning

SKILLS

PROGRAMMING

C/C++ • Python
Javascript • Matlab

BUILD SYSTEMS

Catkin • CMake • Make
Qibuild • Jenkins • Travis

OPERATING SYSTEMS

ROS • Linux • QNX • FreeRTOS

ELECTRONIC DESIGN

EagleCAD • Circuit Design
PCB Design • SMD Soldering

MECHANICAL DESIGN

Solidworks • 3D Printing
Machining • Plastic Casting

MISC

Git • Github • Stash • Gtest
Rviz • V-REP • Docker • AWS

EXPERIENCE

NEATO ROBOTICS

Fremont, CA
Robotics Software Engineer — Jul 2016 - Present

- Improved docking reliability. Refactored infrastructure producing documented unit tested code. Implemented new features.
- Evaluated multiple tof/stereo cameras. Recorded sample datasets used for technology selection. Interfaced with vendors on requirements.
- Spearheaded automated on-robot testing program. Built infrastructure for fleet command and monitoring using existing cloud infrastructure.
- Fulfilled team level release engineering duties. Tested incremental builds using testing on-robot program. Released builds to SQA, beta testers, and production.
- Technologies used: LIDAR, C++, Python, Javascript, QNX, Git, Stash (Bitbucket), Jenkins, AWS, Gtest.

FETCH ROBOTICS

San Jose, CA
Robotics Engineer — July 2015 – Apr 2016

- Developed algorithms for LIDAR-based tracking of people and mobile robots using EKF.
- Authored dynamically loadable modular EKF library using ROS pluginlib.
- Increased robustness of robot charge docking system through improvements in perception, navigation, and recovery behaviors.
- Conducted peer code reviews and maintained code base using git and github tools.
- Technologies used: Computational Geometry, EKF, C++, Python, ROS, Git, LIDAR.

FARCO TECHNOLOGIES

Brooklyn, NY
Robotics Engineer — May 2012 – Jun 2015

- Wrote code to test hardware and peripheral driver libraries in C.
- Designed proprietary autopilot systems using EDA software used for multiple autonomous vehicles.
- Designed chassis, shells, and housings in Solidworks and had them produced using multiple rapid prototyping and traditional machining techniques.
- Integrated and tested autonomous vehicle electronics and mechanisms.
- Technologies used: Linear Filters, C, EDA, CAD, ARM, IMU, UART, I2C, CAN, Op Amps.

RESEARCH

CONTROL/ROBOTICS RESEARCH LAB AT NYU

Brooklyn, NY
Graduate Research Assistant — Jan 2014 – Jul 2015

- Developed novel inverse kinematics crawling gait for Nao Humanoid Platform.
- Implemented cost-based potential field navigation using LIDAR mounted on Nao.
- Wrote gradient descent-based inverse kinematics solver for out-of-workspace end effector pose objectives.
- Implemented basic object detection and classification regressors using low-cost LIDAR.
- Technologies used: Inverse Kinematics, Numerical Optimization, Potential Field Navigation, 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.