Griswald **Brooks**

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EDUCATION

NYU SCHOOL OF ENGINEERING

Masters of Science in Electrical Engineering
May 2015 | Brooklyn, NY
GPA: 3.3
Conc. in Controls and Robotics

Bachelors of Science in Computer Engineering
May 2013 | Brooklyn, NY
GPA: 3.5
Cum Laude

LRCC

Associate of Science in Computer Technologies
Dec 2009 | Laconia, NH
GPA: 3.9

LINKS

Github
github.com/griswaldbrooks

LinkedIn
linkedin.com/in/griswaldbrooks

COURSEWORK

GRADUATE

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

SKILLS

PROGRAMMING

C/C++ • Python • Matlab

BUILD SYSTEMS

Catkin • CMake • Qibuild

OPERATING SYSTEMS

ROS • Linux • FreeRTOS

ELECTRONIC DESIGN

EagleCAD • Circuit Design
PCB Design • SMD Soldering

MECHANICAL DESIGN

Solidworks • 3D Printing
Machining • Plastic Casting

MISC

Rviz • Git • Github
V-REP • Virtualbox

EXPERIENCE

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 unit testing code 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.

CONTROL/ROBOTICS RESEARCH LAB AT NYU — Brooklyn, NY

Lab Manager — Jan 2014 – Jun 2015

- Managed teaching and research lab equipment selection and purchasing.
- Assembled and repaired lab electronics related to robotics research.
- Coordinated lab availabilities, presented lab to prospective students/parents, and operated equipment demos.
- Technologies used: Nao, LIDAR, Quadrotors, Quadrupeds, 4DoF Arm, Depth Camera.

Teaching Assistant — Jan 2014 – Dec 2014

- Planned and delivered student lectures on experimental procedures and theory.
- Administered experiments, graded student reports, and wrote lab final examinations.
- Conducted Feedback Control and Embedded Systems lab courses.
- Technologies used: PID, Lead-Lag Controllers, C, Motors, Amplifiers, Encoders.

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.