

Sean D Matthews

120 1st Place Apt 5C, Brooklyn, NY 11231 | (215) 500-4498 | sean.d.matthews@gmail.com

Software Engineer

- C/C++, Java, Python, Objective-C/Swift
- Robot planning & perception
- Autonomous robot navigation
- Autonomous robotic manipulation
- Sensor fusion
- Mobile app development
- ROS (Robot Operating System)
- Parallel programming, CUDA
- Linux/Unix, Mac OS, Windows
- Algorithm Development

Experience

GOLDMAN SACHS, NEW YORK, NY 2015-2016

Vice President

Commodities electronic trading platform development

Key projects:

- Addition of base metals trading capability to Goldman Sachs' Marquee platform
- Chicago Mercantile Exchange FIX protocol implementation
- Power trading tool for spread marking and extrapolation

ROWBOAT ENTERTAINMENT, NEW YORK, NY 2013-2015

Sole proprietor

A sole proprietorship setup for taking on freelance jobs.

Key projects:

- iOS mockup of a dating app for athletes
- iOS app for decentralized bluetooth communication
- Backend web development and API integration for restaurant online ordering and inventory management software

CATERPILLAR INC, PITTSBURGH, PA 2012-2013

Senior Software Engineer

Caterpillar's Pittsburgh Automation Center focuses on the research and implementation of intelligent automation and semi-automation of mining processes.

Key projects:

- Implemented histogram of oriented gradients (HOG) algorithm on a GPU for the purpose of real-time person detection via camera images from a slow-moving vehicle
- Devised software development procedures, a unified build environment, and tools to manage the code base of a small development team
- Architected large portions of a system designed to fuse raw and derived measurements from camera and radar

RE2 INC, PITTSBURGH, PA 2011-2012

Senior Software Engineer

RE2 Inc. makes military-grade robotic arms. My involvement with RE2 started as a consultant charged with developing a museum exhibit comprised of the "Robbie" the robot (<http://thearmrobot.com>). I joined the company as a full-time employee to develop the second museum installation.

Key projects:

- Lead software developer on an autonomous robotic exhibit for the American History Museum in Washington, DC. The multi-faceted exhibit interactively competed against museum-goers in a game similar to the classic 90s game “Simon”, played the game by itself (no cheating), and also performed canned motions.
- Lead software developer on an autonomous robotic exhibit for the Air and Space Museum in Washington, DC. This exhibit, like the first, has an interactive portion that prompts museum-goers to pick up a NASA space tool with the robot’s arm, autonomously picks up and uses NASA space tools, and performs several canned motions.
- Developed core autonomous grasp planning software for 7-DOF Barrett arm

BLINK GEAR LLC, PITTSBURGH, PA

2010-2012

Co-founder

Founded Blink Gear as fun venture with lofty goals and tangible milestones. We create WiFi-enabled electronics that change the way people interact with the world.

Key projects:

- Blink Gear developed and manufactured WiFi-enabled electronics with accompanying mobile apps
- First product (BlinkRCv1.1) released Q3 2010, second product (BlinkRCv2.0) released Q2 2011
- Over 1000 units sold
- Created free mobile apps for both iPhone and Android to control RC vehicles with the BlinkRC board
- Marketed to domestic and international suppliers

APPLIED PERCEPTION INC, PITTSBURGH, PA

2008-2011

Robotic Software Engineer

QinetiQ North America bought Foster-Miller who bought Applied Perception, the Pittsburgh company that recruited me from University of Florida to work on a DARPA-sponsored autonomous ground robotics projects aimed at pushing the limits of ground robot perception and path planning.

Key projects:

- Developed a number of path planning algorithms for DARPA’s Learning Applied to Ground Robots (LAGR) program
- Developed stereo vision object localization for fly-by-wire manipulation on wounded warfighter extraction robot
- Developed ultra-wideband radio person-following system to aid in autonomous extraction of wounded warfighters
- Developed autonomous capabilities (GPS waypoint following, leader following, and obstacle detection and avoidance) for fielded Talon and MAARS robots
- Developed a system for sensor data synchronization for our autonomous Dragon Runner vehicle
- Developed mobile apps for robot interfacing (driving, servo control, video feedback)

UNIVERSITY OF FLORIDA, GAINESVILLE, FL

2006-2008

Graduate Research Assistant

As a graduate research assistant in the landmine detection lab, I researched innovative algorithms and techniques for improving the detection rate of landmines versus ground clutter.

Key projects:

- Incorporated 2-axis positioning data feature into a feed-forward order-weighted (neural) network for improved land mine classification and operator usability
- Performed field testing of algorithmic concepts at Fort A.P. Hill

Education

University of Florida, Ph.D. Computer Engineering (INCOMPLETE)

University of Scranton, B.S. Computer Science, M.S. Software Engineering