Trevor M. Decker

Cell: 412-266-1743 email: tdecker@andrew.cmu.edu U.S. Citzen

Employment History

Research Assistant, CMU Field Robotics Center (2011 - Current)
- Assisted with software and hardware maintenance/development of 10+ robots
- Built multi-robot co-localization algorithms in low infrastructure environment
- Developed Kalman filter and EKF for sensor fusion
- Added vision system to robot to allow for automated initialization

Intern, Amazon Prime Air (Summer 2015)
- Worked on computer vision and a real time embedded system for a new type of sensor
- Team is applying for multiple patents based on my work on the project
- Completed assigned internship project early, helped another intern finish a second project

Intern, Volkswagen Electronics Research Laboratory (Summer 2014)
- Developed scalable architecture for sensor extrinsic calibration verification
- Upgraded legacy code to work with new system interface
- Participated in and helped organize Computer Vision reading group
- Won 3rd place at internal hackathon

Introduction to robotics TA (Spring 2013,2014,2015)
- Co-created final lab for class 2013
- Designed new bayes filter localization lab, robots solve the lost robot problem
- Taught localization/state estimation lecture for professor
- Helped write and grade midterm/final 2014,2015

Introduction to Electrical and Computer Engineering (Fall 2015)
- Responsible for helping students during labs and grading student homework

Programming
Matlab ★★★★★
C ★★★★☆
C++ ★★★☆☆
Java ★★★★☆
Python ★★★☆☆
Verilog ★☆☆☆☆
HTML ★★★☆☆
PHP ★★☆☆☆
JavaScript ★★☆☆☆
SML ★★☆☆☆
LaTex ★★★☆☆

Libraries
ROS ★★★☆☆
Free RTOS ★★☆☆☆
OpenCV ★★☆☆☆
PCL ★☆☆☆☆

Software
linux ★★★☆☆
Adobe Premiere ★★☆☆☆
SolidWorks ★★★☆☆

Mechanical
Mill ★★★☆☆
Lathe ★★☆☆☆
3d printer ★★★★☆
laser cutter ★★★☆☆
Carbon Fiber ★☆☆☆☆

Education

Carnegie Mellon University (CMU), Pittsburgh, PA
- Masters of Science in Electrical Computer Engineering expect to graduate May 2016
- Bachelors of Science in Electrical Computer Engineering with minors in Computer Science, Robotics, and Business Administration (2015)

Relavent Classes

Mecatronic Design (Spring 2015)
- Received Coolest Robot award, Designed/built 5 degree of freedom robot to clean skyscrapper windows
- Implemented vision system which can locilise robot relative to the windows frame

Real Time Embedded Systems (Fall 2014)
- Designed working RTOS with priority inversion

Embedded Controls (Spring 2015)
- Programmed stable inverted pendulum

Robot Kinematics And Dynamics (Spring 2014)
- Created kalman filter for vision system parameter estimation

Computer Vision (Fall 2014)
- Designed optical text recognition system

Activities

Mentor, Girls Of Steel FIRST Robotics Team 3504 (2011 - 2013)
- Mentored CMU sponsored robotics team of 40+ high school girls
- Mentored programmers, who won Regional Innovation in Control award
- Co-taught Java programming course for students
- Acted as a Resident Assistant for 30 visiting Chinese students during a 2 week camp (2013)

Robotic Buggy (2013 - Current)
- Creating a robot which can autonomously compete in a gravity race at CMU
- Lead Software Team (manage 8+ people) Responsible for all software and firmware
- Developed a scalable real time architecture for mapping,path planning, and localization
- Wrote motion model and observation model for GPS, IMU, encoders, cameras, ...
- Built computer vision road lane and building feature detectors to help extract robots state

Apex Buggy Team (2011 - Current)
- Relay race at CMU with human driven carbon fiber carts built by students
- Co-founded team as a freshman (now has 40+ members), been an active member for 4+ years

Scan to see some of my work

http://tinyurl.com/tdecker

Distinctions

- Computer Technician, Diagnosed repaired computers for 650+ students (2009 - 2011)
- Black Belt,Tang Soo Do Karate
- Volunteer of the Year,Carnegie Science Center 200+ hours (2007)