

ROBERT G. COFIELD

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WORK HISTORY

GPS and Vehicle Dynamics Laboratory (May 2012 - Present)

Assistant Researcher

- Designed and implemented data bridge between two message passing architectures for flexible, robust error calculation and visualization of multiply derived position solutions. Optimized algorithm through real-time testing in instrumented vehicle.
- Created graphical user interface to aid in the development of navigation sensor fusion algorithms, allowing user to visualize positioning solutions and error ellipses for real-time comparison.
- Trained coworkers in lightweight robotic operating systems while programming way point identification capabilities using point clouds for a miniature autonomous ground vehicle.
- Currently investigating sensor fusion algorithms for providing navigation information to blind pedestrians, incorporating map database information, limited GNSS coverage, stereo camera data, and multiple IMU devices.

Fargason Contracting, Inc (May 2009 - January 2010)

Assistant to Licensed Contractor and Electrician

- Trained in operating and maintaining an extensive array of heavy machinery and power tools.
- Learned equipment and chemical safety procedures in both industrial and residential settings.

EDUCATION

Auburn University Auburn, AL, USA • Bachelor of Science in Mechanical Eng., May 2013

Cumulative GPA: 3.58/4.00

Mechanical Engineering CAD · Modeling and Control of Dynamical Systems · FEA ·
Mechatronics · Mechanics of Materials · Machining · Microcontroller Programming · Signal
Conditioning and Processing · Sensor Calibration · Multivariable Calculus · Linear Algebra ·
Numerical Analysis · Dynamic Modeling · System Identification and Characterization

Undergraduate Honors Thesis Created an efficient graphical user interface to aid ground
vehicle drivers in path fidelity and collision avoidance during low-visibility caravan scenarios.
Used differential GPS techniques to implement relative positioning in real-time. Devised
human testing scenarios to evaluate effectiveness.

- Investigated robotic leg mechanism design for honors contract course credit. Modeled kinematics and dynamics of twelve-bar Jansen linkage to evaluate load transportation potential.
- Continued development of teamwork skills throughout numerous successful group projects.
- Honed communication skills during course in public speaking.
- Extended metal working experience during machine shop certification.

SKILLS AND RELEVANT EXPERIENCE

- C++, Python, MATLAB, Linux Shell, L^AT_EX
- ROS, MOOS, Solid Edge, ANSYS
- Repaired and tuned a clutch-actuated, rear wheel differential drive steering system on commercial mower with trailer dynamics, drawing on experience with zero-point-turn vehicle behavior.
- Completed CITI training to participate in IRB-approved human testing projects

SELECTED HONORS AND MEMBERSHIPS

- Spirit of Auburn Founder's Scholarship
- ConocoPhillips Mechanical Engineering Scholarship
- Dean's List, Fall 2009 - Summer 2011
- Tau Beta Pi Engineering Honor Society
- Pi Tau Sigma Mechanical Engineering Honor Society
- Auburn University Linux Club