Jared G. Wood

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Background

Research and software development enabling autonomous vehicles. Mostly working on perception (signal processing, object detection and tracking from camera and sonar data). Also working on motion planning with uncertainty.

Education

University of California–Berkeley

Ph.D. Engineering **Dec 2011**

- Fields: Controls, artificial intelligence, machine learning.
- Research: Object detection/tracking for motion planning from autonomous aircraft.

M.S. Engineering **May 2008**

- Fields: Controls, signal processing.
- Research: Distributed wireless sensor networks.

University of Utah

B.S. Mechanical Engineering **May 2006**

- Minor: Mathematics.
- *Cum Laude*, with Honors in Engineering.

Work Experience

Hadal
Oakland, California USA

Research & Software Development **Feb 2014 to current**

- Autonomous deep sea vehicle.
- Mostly working on perception tasks to detect seafloor and moving obstacles using sonar-based range images. Also working on motion planning to safely follow seafloor and avoid obstacles.
- Implemented in C++, some prototyping in Python.

Automa Aurora
Berkeley, California USA

Software Development **Jun 2012 to Oct 2013**

- Vehicle routing cloud service.
- Built entire software system that included core distributed optimization algorithm, network communication, mobile app development.
- Implemented in Java, Objective-C, Python.

United Technologies Research Center at Berkeley

Research and Development **Sep 2011 to Apr 2012**

- Autonomous helicopter.
- Implemented particle filter and object detection likelihood functions for target prediction and tracking.
- Implemented in C++.

Center for Collaborative Control of Unmanned Vehicles
Vehicle Dynamics Lab
University of California–Berkeley

Research & Development **Aug 2007 to Sep 2011**

- Autonomous aircraft pedestrian tracking.
- Implemented perception, target track prediction, and motion planning to detect and follow pedestrians on the ground.
- Implemented in C++.

Lawrence-Berkeley National Lab
University of California–Berkeley

Research & Development **May 2006 to Aug 2007**

- Implemented software for wireless sensor network high-frequency low-power sampling and communication.
- Implemented in C, Java.

Publications

Wood, J.G., and J.K. Hedrick. Partition Learning for Multiagent Planning. *Journal of Robotics*. Volume 2012, Article ID 590479. 2012.

Wood, J.G. Time Evolving Space Partitioning for Search and Tracking of an Unknown Number of Targets by a Team of Heterogeneous Autonomous Agents. Dissertation, University of California, Berkeley. 2011.

Wood, J.G., and J.K. Hedrick. Multi-agent Path Planning for an Unknown Number of Targets over Dynamic Space Partitions. In: *Proceedings of the 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC 2011)*, December 12–15, 2011.

Wood, J.G., and J.K. Hedrick. Space Partitioning and Classification for Multi-target Search and Tracking by Heterogeneous Unmanned Aerial System Teams. In: *Proceedings of the 2011 AIAA Infotech@Aerospace Conference*, March 28, 2011.

Wood, J.G., B. Kehoe, and J.K. Hedrick. Target Estimate PDF-based Optimal Path Planning Algorithm with Application to UAV Systems. In: *Proceedings of the 2010 ASME Dynamic Systems and Control Conference*, September 13, 2010.

Wood, J.G. Reliable Wireless Sensor Network for Data Acquisition. Thesis, University of California, Berkeley. 2008.

Wood, J.G., and S. Mascaro. Human Finger Muscle-Tendon System for Robotics. In: *Utah Undergraduate Research Journal*, 6, pp. 75, 112. 2006.

Garvey, J., B. Kehoe, B. Basso, M. Godwin, J. Wood, J. Love, S.-Y. Liu, Z. Kim, S. Jackson, Y. Fallah, T. Fu, R. Sengupta, and J.K. Hedrick. An Autonomous Unmanned Aerial Vehicle System for Sensing and Tracking. In: *Proceedings of the 2011 AIAA Infotech@Aerospace Conference*, March 28, 2011.

Sengupta, R., J. Connors, B. Kehoe, Z. Kim, T. Kuhn, and J. Wood. Final Report – Autonomous Search and Rescue with ScanEagle. Prepared for Evergreen Unmanned Systems and Shell International Exploration and Production Inc., September, 2010.