

## Daniel Barber

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### ***Research Interests***

Machine learning and intelligent systems development and implementation, live virtual constructive system design and implementation, interoperability and systems integration, unmanned systems.

### ***Education***

<b>University of Central Florida (Orlando, FL)</b>	2009-Present
Ph.D. Student in Modeling and Simulation	
<b>University of Central Florida (Orlando, FL)</b>	2006
Masters of Science: Computer Engineering (Intelligent Systems Track)	
<b>University of Central Florida (Orlando, FL)</b>	2004
Bachelor of Science: Computer Engineering	

### ***Professional Experience***

#### **Institute for Simulation and Training**

**January 2007 - Present**

##### **Research Associate**

- Implementation of Joint Architecture for Unmanned Systems (JAUS) for communication with unmanned vehicles
- Addition of unmanned system to an existing distributed simulation
- Development of Live Virtual Constructive Robotics Testbed
- Work in Intuitive User Interfaces for Human Robot Interaction (HRI)

#### **Robotics Laboratory at UCF**

**August 2003 – December 2006**

##### **Graduate Student Researcher**

- Project leader and system designer for autonomous ground vehicles
- Developed machine vision programs using neural networks and rule based systems
- Developed world-modeling and path-planning software for autonomous navigation
- Designed and developed control and communication software for robotic vehicles
- Designed and constructed electrical and power distribution systems for ground robot.

#### **Institute for Simulation and Training**

**May 2004 – December 2006**

##### **Graduate Research Assistant**

- Computer vision based arm and hand gesture recognition development
- Maintained and developed robotic vehicle for human agent team experiments
- Developed software and electronics for control of robotic vehicles
- Development of interactive website for dissemination of information

### ***Volunteer Work***

#### **Robotics Laboratory and Club at UCF**

**January 2007 to Present**

##### **Mentor/Advisor**

- Advise students on projects for international robotics competitions and senior design teams.
- Lead student teams to multiple wins at competitions sponsored by the Association for Unmanned Vehicle Systems International (AUVSI), e.g. Autonomous Surface Vehicle Competition

### ***Security Clearance***

Secret Clearance, Defense Industrial Security Clearance Office. Expires 2018.

## ***Publications***

Barber, D., Nicholson, D., “Intelligent Resource Operational Network (IRON) for Cultural Modeling.” In the Proceedings of the 18<sup>th</sup> Conference on Behavior Representation in Modeling and Simulation, Sundance, UT, 31 March – 2 April 2009.

Barber, D., Davis, L., Nicholson, D., Chen, J.Y.C., Finkelstein, N. “The Mixed Initiative Experimental (MIX) Testbed for Human Robot Interactions with Varied Levels of Automation.” In the Proceedings of the 26<sup>th</sup> Army Science Conference, Orlando, 2008.

Varcholik, P., Barber, D., Nicholson, D. “Interactions and Training with Unmanned Systems and the Nintendo Wiimote.” In the Proceedings of the Interservice/Industry Training, Simulation, and Education Conference (IITSEC), No. 8255, 2008.

Barber, D.J., Leontyev, S., Sun, B., Davis, L., Chen, J.Y.C., Nicholson, D., “The Mixed-Initiative Experimental Testbed for Collaborative Human Robot Interactions.” In the Proceedings of the 2008 International Symposium on Collaborative Technologies and Systems, IEEE, 2008 p. 483-489.

Barber, D.J., Davis, L., Kemper, D., Smith, P., Nicholson, D., “Collaborative Human Robot Interactions in Combined Arms Operations.” In the Proceedings of the 2007 International Symposium on Collaborative Technologies and Systems, IEEE, Orlando, FL, May 21-25, 2007 p. 88-92.

Barber, D.J., Becker, B.C., Gonzalez, F.G., “Discover Vision: A Framework for Building, Evaluating, and Testing Performance Based Machine Vision Applications.” In the Proceedings of Unmanned Systems North America 2006. AUVSI, Orlando, FL, August 2006.

Barber, D.J., Gonzalez, F.G., Roberts, T., Becker, B.C., “Software Design for an Autonomous Ground Vehicle for the 13<sup>th</sup> Annual Intelligent Ground Vehicle Competition.” In Proceedings of Intelligent Robots and Computer Vision XXIII: Algorithms, Techniques, and Active Vision, SPIE, Vol. 6006 p. 202-209 October, 2005.

Gonzalez, F.G., Roberts, T., Barber, D.J. Kiriwas, A, Becker, B.C., “Calculon: An Autonomous Ground Vehicle for the 13<sup>th</sup> Annual Intelligent Ground Vehicle Competition.” In Proceedings of 5<sup>th</sup> Annual Intelligent Vehicle Symposium & Exhibition, National Defense Industries Association (NDIA), Michigan, June 2005.

Barber, D.J., Becker, B.C., Ortiz, E.G., “Gamblore.” In the Proceedings of The 16<sup>th</sup> Annual Intelligent Ground Vehicle Competition, Association for Unmanned Vehicle Systems International (AUVSI), <http://www.igvc.org>, Michigan, June 2007.

Barber, D.J., Becker, B.C., Ortiz, E.G., “Calculon.” In the Proceedings of The 14<sup>th</sup> Annual Intelligent Ground Vehicle Competition, Association for Unmanned Vehicle Systems International (AUVSI), <http://www.igvc.org>, Michigan, June 2006.

Barber, D.J., Kiriwas, A, Gonzalez, F.G., Roberts, T., Becker, B.C., “Calculon.” In the Proceedings of The 13<sup>th</sup> Annual Intelligent Ground Vehicle Competition, Association for Unmanned Vehicle Systems International (AUVSI), <http://www.igvc.org>, Michigan, June 2005.

Sims, V. K., Chin, M. G., Sushil, D. J., Barber, D.J., Ballion, T., Clark, B. R., Garfield, K. A., Dolezal, M. J., Shumaker, R., & Finkelstein, N., “Anthropomorphism of Robotic Forms: A Response to Affordances?” In the Proceedings of the Human Factors and Ergonomics Society 49<sup>th</sup> Annual Meeting, Orlando, FL September 26-30, 2005.

Sims, V. K., Chin, M. G., Yordon, R. E., Sushil, D. J., Barber, D.J., Owens, C. W., Smith, H. S., Dolezal,

M. J., Shumaker, R., & Finkelstein, N., "When Function Follows Form: Anthropomorphism of Artifact "Faces." In the Proceedings of the Human Factors and Ergonomics Society 49<sup>th</sup> Annual Meeting, Orlando, FL September 26-30, 2005.

Barber, D.J., A, Gonzalez, F.G., Roberts, T., Becker, B.C. Andres, R., "Black Knight." In the Proceedings of The 13<sup>th</sup> Annual Intelligent Ground Vehicle Competition, Association for Unmanned Vehicle Systems International (AUVSI), <http://www.igvc.org>, Michigan, June 2004.