

# Biographical Sketch

WILLIAM HOFF

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## PROFESSIONAL PREPARATION

B.S. Physics, Illinois Institute of Technology, May 1978.

M.S. Physics, University of Illinois (Urbana), August 1981.

Ph.D. Computer Science, University of Illinois (Urbana), January 1987.

## APPOINTMENTS

|  |                                      |
|--|--------------------------------------|
| Associate Director, Engineering Division             | <i>August 2006 - present</i>         |
| Associate Professor, Colorado School of Mines        | <i>August 2001 - present</i>         |
| Assistant Professor, Colorado School of Mines        | <i>August 1994 – August 2001</i>     |
| Staff Engineer, Martin Marietta Astronautics Group   | <i>September 1988 - August 1994</i>  |
| Staff Engineer, Martin Marietta Aero & Naval Systems | <i>January 1987 - September 1988</i> |
| Graduate Research Assistant, University of Illinois  | <i>January 1982 - December 1986</i>  |

## RELATED PUBLICATIONS

Luck, J.P., C. Debrunner, W. Hoff, Q. He, and D.E. Small. "Development and Analysis of a Real-Time Human Motion Tracking System." *IEEE Workshop on Appl. of Computer Vision*. 2002. Orlando, FL.

Chai, L., W.A. Hoff, and T. Vincent, "Three-dimensional motion and structure estimation using inertial sensors and computer vision for augmented reality". *Presence: Teleoperators and Virtual Environ*, 2002. 11(5): p. 474-492.

Parker, R., W. Hoff, A. Norton, J. Lee, and M. Colagrosso, "Activity Identification and Visualization," *Proc. of Pattern Recognition in Information Systems – PRIS 2005*, Miami, FL, 2005, May 24-25, pp. 124 – 133.

Lee, J., W. Hoff, "Activity Identification Utilizing Data Mining Techniques," *Proc. of IEEE Workshop on Motion and Video Computing*, Austin, TX, 2007, Feb. 23-24.

Rimey, R., W. Hoff, J. Lee, "Recognizing wide-area and process-type activities," *Proc. of 10th International Conference on Information Fusion*, Quebec City, QC, Canada, 2007, Jul. 9-12, pp. 1-8.

## OTHER PUBLICATIONS

Hoff, W. and N. Ahuja, "Surfaces from Stereo: Integrating Feature Matching, Disparity Estimation, and Contour Detection." *IEEE Trans. Pattern Analysis and Machine Intelligence*, 1989. 11(2): p. 121-136.

Byler, E., Chun, W., Hoff, W., and Layne, D., "Autonomous hazardous waste inspection vehicle," *IEEE Robotics and Automation Magazine*, Vol. 2, No. 1, pp. 6-17, 1995.

Hoff, W.A. and T. Vincent, "Analysis of Head Pose Accuracy in Augmented Reality." *IEEE Trans. Visualization and Computer Graphics*, 2000. 6(4): p. 319-334.

Mahfouz, M., W. Hoff, R. Komistek, and D. Dennis, "A Robust Method for Registration of Three-Dimensional Knee Implant Models to Two-Dimensional Fluoroscopy Images," *IEEE Trans. Medical Imaging*, vol. 22, no. 12, pp. 1561-74, 2003.

C. Baker, C. Debrunner, S. Gooding, W. Hoff, and W. Severson, "Autonomous Vehicle Video Aided Navigation - Coupling INS and Video Approaches," *Proc. of 2nd International Symposium on Visual Computing*, Lake Tahoe, NV, 2006, Nov. 6-8, pp. 534-543.

## **SYNERGISTIC ACTIVITIES**

Colorado School of Mines

*August 1994 - present*

Founded a research lab focusing on 3-D computer vision, specializing in the area of augmented reality and interactive computer vision systems. Developed a funded research program in augmented reality, focusing on registration using computer vision techniques and inertial sensors. Developed a funded research program in medical imaging, focusing on algorithms to analyze the kinematics of joints from x-ray fluoroscopy image sequences. Started a collaboration with a local medical research center, which developed into a NSF I/UCRC program in biomedical devices. Developed undergraduate courses in digital electronics and microcontrollers, focusing on data acquisition and control systems. Developed graduate courses on computer vision and image processing.

Staff Engineer, Martin Marietta Astronautics Group

*September 1988 - August 1994*

Lead of target recognition algorithm development and integration team for DARPA's unmanned ground vehicle program, and successfully conducted two annual demonstrations. Developed the navigation and inspection systems of a robotic vehicle system for the Department of Energy that demonstrated autonomous monitoring and inspection of hazardous waste storage facilities. As principal investigator of an independent research and development project on Computer Vision, directed the development and integration of vision technology into several robot testbeds, including a multi-arm supervisory controlled system and a free-flying vehicle simulator.

## **COLLABORATORS & OTHER AFFILIATIONS**

Colagrosso, Michael – LabJack, Inc.

Debrunner, Chris – Lockheed Martin

Komistek, Richard – University of Tennessee, Knoxville

Lee, Jae Young – Boston College

Lee, Wan Joo - Yong-In University, South Korea

Mahfouz, Mohammed – University of Tennessee, Knoxville

Merkel, Brandon – University of Tennessee, Knoxville

Moore, Kevin - Colorado School of Mines

Norton, Alan – National Center for Atmospheric Research

Rimey, Ray – Lockheed Martin

Severson, William – Lockheed Martin

Vincent, Tyrone - Colorado School of Mines

## **GRADUATE ADVISORS AND POSTDOCTORAL SPONSORS**

Ahuja, Narendra – University of Illinois

## **THESIS ADVISOR AND POSTGRADUATE-SCHOLAR SPONSOR**

Baker, Chris – Lockheed Martin

Gooding, Sean – Lockheed Martin

King, Joshua – Honeywell, Inc.

Kupilik, Matt - Colorado School of Mines

Nguyen, Bao - Colorado School of Mines

Parker, Rick – Southwest Research Institute

Steinbis, John – Raytheon

Wennogle, Marc – Veran Medical, Inc.

Number of graduate students advised and postdoctoral scholars sponsored in the last 5 years: 11