

Nathaniel D. Bird

CONTACT INFORMATION

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University of Minnesota
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EDUCATION

University of Minnesota, Minneapolis, Minnesota

Ph.D., Computer Science (expected graduation date: June 2009)

- Dissertation Title: "High-Precision, Vision-Based Human Body Tracking"
- Advisor: Nikos Papanikolopoulos
- Minor: Psychology

M.S., Computer Science (May 2006)

- Thesis Title: "Detection of Loitering Individuals in Public Transportation Areas"
- Advisor: Nikos Papanikolopoulos
- Award: Matthew J. Huber Award for Excellence in Transportation Research and Education

Ohio Northern University, Ada, Ohio

B.S., Computer Engineering *with High Honors* (May 2003)

- Minors: Applied Mathematics, Physics
- Honors: Tau Beta Pi, Phi Kappa Phi, Sigma Pi Sigma, Phi Eta Sigma

TEACHING EXPERIENCE

University of Minnesota, Minneapolis, Minnesota

Technology Day Camp Co-Coordinator **Summer 2008**

- A week-long day camp to get middle school students from underrepresented backgrounds interested in computer science.
- Duties included: planning, developing curriculum, organizing volunteers, and leading the camp.
- For more information on the camp, see <http://techcamp.cs.umn.edu>.

Teaching Assistant, CSci 5561: Computer Vision **Spring 2008**

Teaching Assistant, CSci 1901: Introduction to Programming **Summer 2007**

Teaching Assistant, CSci 5551: Artificial Intelligence I **Fall 2006, Spring 2007**

RESEARCH INTERESTS

Medical imaging, coded structured light systems, human activities recognition, image processing

JOURNAL PUBLICATIONS

K. Cannon, M. A. LaPoint, N. Bird, K. Panciera, H. Veeraraghavan, N. Papanikolopoulos, and M. Gini, "Using Robots to Raise Interest in Technology Among Underrepresented Groups", *IEEE Robotics and Automation Magazine*, vol. 2, no. 99, pp. 2-11, 2007.

H. Veeraraghavan, N. Bird, S. Atev, N. Papanikolopoulos, and P. Schrater, "Classifiers for Driver Activity Monitoring", *Transportation Research Part C: Emerging Technologies*, vol. 15, no. 1, pp. 51-67, Feb. 2007.

N. Bird, O. Masoud, N. Papanikolopoulos, and A. Isaacs, "Detection of Loitering Individuals in Public Transportation Areas", *IEEE Trans. Intelligent Transportation Systems*, vol. 6, no. 2, pp. 167-177, June 2005.

CONFERENCE
PUBLICATIONS

N. Bird, S. Atev, N. Caramelli, R. Martin, O. Masoud, and N. Papanikolopoulos, "Real-Time, Online Detection of Abandoned Objects in Public Areas", *Proc. IEEE Conf. Robotics and Automation (ICRA 2006)*, pp. 3775-3780, May 2006.

K. Cannon, M. A. LaPoint, N. Bird, K. Panciera, H. Veeraraghavan, and N. Papanikolopoulos, "No Fear: University of Minnesota Robotics Day Camp Introduces Local Youth to Hands-On Technologies", *Proc. IEEE Conf. Robotics and Automation (ICRA 2006)*, pp. 363-368, May 2006.

H. Veeraraghavan, S. Atev, N. Bird, P. Schrater, and N. Papanikolopoulos, "Driver Activity Monitoring through Supervised and Unsupervised Learning", *Proc. IEEE Conf. Intelligent Transportation Systems (ITSC 2005)*, pp. 895-900, Sep. 2005.

G. Gasser, N. Bird, O. Masoud, and N. Papanikolopoulos, "Human Activities Monitoring at Bus Stops", *Proc. IEEE Conf. Robotics and Automation (ICRA 2004)*, pp. 90-95, April 2004.

N. Bird, E. Miller, P. Pfeiffer, and S. Vemuru, "Channel Routing with Crosstalk Considerations", *Proc. Int'l Conf. VLSI*, pp. 119-124, 2003.

RESEARCH
EXPERIENCE

University of Minnesota, Minneapolis, Minnesota

Graduate Research Assistant

September 2003 to present

- Currently developing a full-body patient tracking system for medical applications.
- Developed a large vision-based human activities monitoring system for the Department of Homeland Security, comprising of over 100 cameras and many detected behaviors.
- Developed vision algorithms to detect distracting behavior in motorists.
- Developed a vision system to monitor for suspicious behavior at bus stops.

PEER REVIEW

Served as a reviewer for the following publications and conferences: *IEEE Trans. Circuits and Systems for Video Technology (CSVT)*, *Journal of Computer Science and Technology (JCST)*, *IEEE Conf. Robotics and Automation (ICRA)*, *IEEE Conf. Intelligent Transportation Systems (ITSC)*, *IEEE/RSJ Int'l Conf. Intelligent Robots and Systems (IROS)*.

OTHER
LEADERSHIP
EXPERIENCE

Vice president, Franklin Housing Cooperative, 2008

- Essentially a 150 unit home-owners association.

Written Preliminary Exam Review Committee, 2008

REFERENCES

References available upon request.