Thomas B. Pollard

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Research Interests

Change detection, 3-d reconstruction, image-based rendering, augmented reality, recognition, multi-view geometry, computer graphics, applied probability and statistics, information theory, differential geometry.

Education

PhD Candidate, Applied Mathematics, May 2008 expected
Brown University Providence, RI
Thesis Advisor: Joseph L. Mundy

B.A. Mathematics, magna cum laude, 2002
Pomona College Claremont, CA

Work Experience

2004-present Brown University Providence, RI
Research Assistant
•Developed a voxel-based 3-d change detection algorithm for aerial imagery with variable viewpoints and illumination; used learned voxel models for related problems in 3-d reconstruction, image-based rendering, and 3-d video registration; designed the photogrammetry library for VXL.

2003-2004 Brown University Providence, RI
Teaching Assistant
•TA for AM165: Statistical Inference I and AM166: Statistical Inference II, upper-level undergraduate applied mathematics classes.

Summer 2001 Colorado School of Mines Golden, CO
Undergraduate Research Assistant
•Participated in a Research Experience for Undergraduates (REU) program, analyzed error bounds for dynamical systems.

Summer 2000 Bureau of Labor Statistics Washington, DC
Student Analyst
•Participated in Joint Program in Survey Methodology for undergraduate math/statistics concentrators. Analyzed consumer spending data collected by the BLS.

1999-2002 Pomona College Claremont, CA
Math Mentor
•Undergraduate TA duties for Calculus II, III.

Publications

Pollard, T., Restrepo, I., Mundy, J.L. 'Comprehensive Change Detection in Aerial Imagery Under Conditions of Haze, Occlusion, and Variable Illumination.' (in preparation)

Pollard, T., Mundy, J.L. 'Change detection in a 3-d World.' IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2007.

Conferences

Presented change detection research at NGA Academic Research Program Symposium, Sept 12-14 2007.

Presented a poster on change detection research at IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 20-22 2007.

Attended IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 19-21 2006.

Awards

VIGRE NSF Graduate Fellowship, Brown University, 2004-2006.
University Fellowship, Brown University, 2002-2004.
The Hugh J. Hamilton Prize, Pomona College 2002.
The Llewellyn Bixby Mathematics Prize, Pomona College 2001.
The Jaeger Mathematics Prize, Pomona College 2000.

Technical Skills

Languages: C++, Matlab
Extensive experience with the VXL computer vision libraries.
Experience working with large NTF satellite images.

References

Prof. Joseph L. Mundy (Thesis advisor)
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Prof. David B. Cooper (Professor in research group)
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