

Michael Holroyd

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RESEARCH INTERESTS:

My research focuses on computer graphics and vision, in particular 3D scanning and acquiring the appearance of complex physical objects. I am also interested in the reverse process of fabricating real-world objects from these digital models while preserving their original appearance.

EDUCATION:

- Ph.D. in Computer Science, University of Virginia. (Expected graduation, May 2011)
- B.S. in Computer Science, The College of William and Mary. (May 2006)
- B.S. in Mathematics with High Honors, The College of William and Mary. (May 2006)

PUBLICATIONS:

1. Michael Holroyd, Jason Lawrence, and Todd Zickler
A Coaxial Optical Scanner for Synchronous Acquisition of 3D Geometry and Surface Reflectance.
ACM Transactions on Graphics (Proc. SIGGRAPH 2010), Vol. 29.
2. Michael Holroyd, Jason Lawrence, and Todd Zickler
A radiometric analysis of projected sinusoidal illumination for opaque surfaces.
University of Virginia Technical Report CS-2010-7, 2010.
3. Michael Holroyd, Jason Lawrence, Greg Humphreys, and Todd Zickler
A Photometric Approach for Estimating Normals and Tangents.
ACM Transactions on Graphics (Proc. SIGGRAPH Asia 2008), Vol. 27.
4. Rex Kincaid, Natalia Alexandrov, Michael Holroyd
An Investigation of Synchrony in Transport Networks.
Journal of Complexity 2009, Vol. 14, Issue 4, pp. 34-43.
5. Rex Kincaid, Christopher Gatz, Michael Holroyd
Understanding the Structure of Power Law Networks.
Proceedings of Spring Simulation Multiconference 2007, Vol. 2, pp. 104-111.
6. Michael Holroyd
Connectivity and Synchronizability of Discrete Complex Systems
Proceedings of the Sixth International Conference on Complex Systems.
New England Complex Systems Institute, Quincy, MA. 2006.

PROFESSIONAL ACTIVITIES:

UVA CS Graduate Student Group Steering Committee (2007-2009)

Technical papers reviewer, ACM SIGGRAPH (2008-2010), ACM SIGGRAPH Asia (2009-2010), Eurographics (2010).

TEACHING ACTIVITIES:

“Information Security, CS451”. University of Virginia (Fall 2006)

“Introduction to Computer Science, CS101X”. University of Virginia (Spring 2007)

“Program and Data Representation, CS216”. University of Virginia (Spring 2007)

RESEARCH EXPERIENCE:

Computer Graphics Research at University of Virginia (2006 - 2011 expected graduation)

Advisor: Jason Lawrence

- Investigating improved methods for synchronous capture of 3D shape and visual appearance from physical objects. This work has involved constructing new optical scanning systems and designing advanced surface reconstruction techniques.

Computer Graphics Research at Disney Research Zürich (Summer 2010)

Supervisor: Wojciech Matusik

- Researching methods for fabricating real-world objects from digital models. My work focused on new algorithms for converting 3D surface and volumetric data into a representation suitable for multiplanar 3D displays.

Interdisciplinary Research at the College of William and Mary (2004 - 2006)

Mathematics / Biology / Applied Science / Computer Science

Colleagues: Christopher Del Negro, John Hayes.

- Researching the cellular and synaptic origins of the mammalian respiratory rhythm. I proved analytic results about neuron network synchronization using techniques from graph theory and verified them with computer simulations.

Honors Thesis in Mathematics at the College of William and Mary (2006)

Advisor: Rex Kincaid.

- Study of oscillating behavior on large-scale network topologies. I implemented a high-performance computer simulation to run empirical experiments on large networks such as power grids, air transportation networks, and social networks.

AWARDS:

University of Virginia Computer Science Best Graduate Research Award (2010)

University of Virginia Dean's Fellowship (2006-2008)

University of Virginia Computer Science Summer Fellowship (Summer 2007)

Howard Hughes Medical Institute Travel Grant (Summer 2006)

The College of William and Mary Mathematics Department Conference Grant (Summer 2006)