EMILY WHITING

ewhiting@csail.mit.edu
http://people.csail.mit.edu/ewhiting

EDUCATION

Massachusetts Institute of Technology

2006 – 2011	Ph.D. candidate, Computer Graphics & Building Technology
2004 – 2006	M.S. Design & Computation, Department of Architecture

Awards: Postgraduate Scholarship, Natural Sciences & Eng. Research Council of Canada
(PGS-D NSERC, 2008–2010)
Best Paper Presentation, 12th Intl Conference on Computer-Aided Architectural Design (2007)
MIT Presidential Fellowship (2006)
M.S. Thesis Prize (2006)
Harold Horowitz Student Research Fund (2005)
Arthur Rotch Graduate Fellowship (2005-06)
W. Danforth Compton Memorial Graduate Fellowship (2004-05)

University of Toronto

1999 – 2004	B.A.Sc. Engineering Science (with honors), Faculty of Applied Science and Engineering

Awards: Women in Engineering and Science Scholarship, National Research Council Canada (2001–04)
Dean's Circle (1999 – 2000)
University of Toronto Scholar (1999 – 2000)
Faculty of Applied Science & Engineering Admission Scholarship (1999 – 2000)
Leonardo da Vinci Scholar, University of Toronto National Engineering Competition (1999)

WORK EXPERIENCE

2006 – present   Architectural Modeling & Simulation

Research Assistant, Computer Graphics Group, MIT Computer Science Department

Ph.D. thesis: Researching design & analysis methods to generate structurally stable architectural models with high geometric detail and visual realism. Results published at ACM SIGGRAPH Asia 2009.
Advisors: Prof. Frédo Durand and Prof. John Ochsendorf

Summer 2010   User Interface Design & Implementation

Research & Development Intern, Industrial Light & Magic, Lucasfilm

Developed user interface tools for in-house software used by artists and animators. Focused on the curve editor for animation tasks.

2004 – 2006   Mapping Urban Environments

Research Assistant, Robotics, Vision & Sensor Networks Group, MIT Computer Science Dept.

M.S. thesis: Researched techniques for automatic interpretation of CAD floor plan drawings into graph representation. Developed interactive route-finding application for indoor-outdoor navigation of the MIT campus. Results published at CAAD Futures Conference.
Advisor: Prof. Seth Teller

Summer 2005   Image-Based Modeling for Cultural Heritage

Research Assistant, Center for Scientific and Technological Research, Trento, Italy

Digitally reconstructed medieval castles. Performed on-site image acquisition and generated complete 3D models using in-house image-based modeling software. Results published in

International Journal for Architectural Computing.
Advisor: Dr. Lorenzo Gonzo

Summer 2001, 2004	**Image-Based Modeling of Architecture**
	Research Assistant, Visual Information Technology Group, Nat'l Research Council Canada

Researched methods for digital reconstruction of architectural scenes from photographs. Involved in testing phase of *ShapeCapture*: photogrammetric image-based modeling software developed at NRC-Canada. Researched ways to integrate AutoCAD floor plan data with image-based models. Results published in ISPRS Congress and SIGGRAPH animation theater.
Advisor: Dr. Sabry El-Hakim

Summer 2002	**High Dynamic Range Image Processing**
	Research Assistant, Visual Information Technology Group, Nat'l Research Council Canada

B.A.Sc. thesis: Studied HDR image assembly and contrast control systems. Implemented algorithms for HDR image compression as plug-ins for HDRShop.
Advisors: Dr. Sabry El-Hakim and Prof. Demetri Terzopoulos (University of Toronto)

2002 – 2003	**Structural Engineering**
	Junior Designer, Structural Engineering Division, Yolles Partnership Inc., Toronto, Ontario

Major project: Centre for Cellular and Biomolecular Research on University of Toronto campus. Designed reinforced concrete elements and built computational model for lateral analysis. Wrote sustainable design guide for energy-efficient façade technologies and recycled construction materials.

PUBLICATIONS

Dec 2009	Procedural Modeling of Structurally-Sound Masonry Buildings. E. Whiting, J. Ochsendorf and F. Durand. Proceedings of SIGGRAPH Asia 2009, Yokohama, Japan.
August 2008	Digital Reconstruction and 4D Presentation through Time. S. El-Hakim, J.F. Lapointe and E. Whiting. SIGGRAPH'08 Sketches, Los Angeles, USA.
July 2007	Generating A Topological Model of Multi-Building Environments. E. Whiting, J. Battat and S. Teller. Proceedings of 12th Intl Conference on Computer-Aided Architectural Design (CAAD) Futures, Sydney, Australia. (*Awarded Best Presentation*)
June 2007	Detailed 3D Modeling of Castles. S. El-Hakim, L. Gonzo, F. Voltolini, S. Girardi, A. Rizzi, F. Remondino and E. Whiting. Intl Journal of Architectural Computing (IJAC).
May 2007	Constrained Planar Remeshing for Architecture. B. Cutler and E. Whiting. Graphics Interface, Montreal, Canada.
June 2006	Constrained Planar Remeshing for Architecture. B. Cutler and E. Whiting. Eurographics Symposium on Geometry Processing, Poster session, Sardinia, Italy.
2006	The Metopes of Selinunte. Directors: V. Valzano, A. Bandiera and J.A. Beraldin. Contributed 3D animation. CD-ROM. Coordinamento SIBA, University of Lecce. (*e-Science Award Italy)*
Oct 2005	3D Modeling with Reusable and Integrated Building Blocks. S. El-Hakim, E. Whiting and L. Gonzo. Optical 3D Measurement Techniques, Vienna, Austria.

Sept 2005	A Hierarchical 3D Reconstruction Approach for Documenting Complex Heritage Sites. S. El-Hakim, J.-A. Beraldin, L. Gonzo, E. Whiting and M. Jemtrud. 20th CIPA Intl Symposium, ICOMOS & ISPRS Committee on Documentation of Cultural Heritage, Torino, Italy.
Nov 2004	Digital Recording of Aboriginal Rock Art. S. El-Hakim, J. Fryer, M. Picard and E. Whiting. 10th Intl Conference on Virtual Systems and Multimedia (VSMM), Ogaki City, Gifu, Japan.
July 2004	Photo-Realistic 3D Reconstruction of Castles with Multiple Sources Image-Based Techniques. L. Gonzo, S. El-Hakim, M. Picard, S. Girardi and E. Whiting. 20th Congress Intl Society for Photogrammetry & Remote Sensing (ISPRS), Istanbul, Turkey.
July 2002	PORTALS. Directors: S. El-Hakim and M. Picard. Contributed 3D scene modeling. SIGGRAPH Video Review Issue 143, Animation Theater Program, San Antonio, Texas.

INVITED TALKS

Media:

March 2011	Featured Scientist, "The Secret Life of Scientists & Engineers," Season 2, Ep. 14, PBS NOVA.

Universities & Organizations:

April 2011	Young Women in STEM Panel, SET in the City, Museum of Science, Boston, Massachusetts.
March 2011	Graphics, Vision, and Interaction Group, Harvard SEAS, Cambridge, Massachusetts.
Aug 2010	R&D Group, Industrial Light & Magic, Lucasfilm Ltd., San Francisco, California.
Nov 2009	INRIA Grenoble – Rhône-Alpes Research Center, Montbonnot, France.
April 2008	American Academy in Rome, New York, New York.
Feb 2008	PhD Discussion Panel, Google Workshop for Women Engineers, San Jose, California.

OTHER EXPERIENCE

Technical Papers Reviewer: ACM SIGGRAPH (2010), ACM SIGGRAPH Asia (2010, 2011), Transactions on Visualization and Computer Graphics (2010, 2011).

Student Volunteer: Intl Conf on Computational Photography (2010), Graphics Interface (2007).

TEACHING

2007 – 2011	**Undergraduate Research Opportunity Program**, MIT Student Advisor for undergraduates in the Computer Science Department.
Spring 2008	**4.440 Basic Structural Design**, Department of Architecture, MIT Teaching Assistant for undergraduate course. Planned and instructed weekly tutorials, held office hours, graded assignments.
Fall 2007	**6.837 Introduction to Computer Graphics**, Department of Computer Science, MIT Teaching Assistant for undergraduate course. Helped students with C++ programming assignments, instructed several tutorials, held office hours, graded assignments.

INTERESTS

Flute & piccolo (MIT Symphony Orchestra, MIT Chamber Music Society), hiking, rock climbing (MIT Outing Club), scuba diving, swimming, soccer, calligraphy and glass blowing.