

Grigore D. Pintilie, Ph.D.

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Ph.D. in Electrical Engineering and Computer Science

Massachusetts Institute of Technology

September 2005 – December 2009

Thesis Title: Segmentation and registration of molecular components in 3-dimensional maps from cryo-electron microscopy

Advisors: David Gossard, Jonathan King

M.Sc. in Computer Science

University of Toronto

September 1999 – May 2001

Thesis Title: Interactive cutting of the skull for craniofacial surgery planning

Advisors: Tim McInerney, Demetri Terzopoulos

B.Sc. in Computer Science

York University

September 1995 – May 1999

Honors Thesis Title: Point and sketch interaction in virtual reality systems

Advisors: Wolfgang Stürzlinger, Michael Jenkin

Selected Publications

- [1] G. Pintilie, P. Heppel, and J. Echelman, "Interactive design and simulation of net sculptures," *R. Taylor et al. (Eds.): Smart Graphics 2010*, Springer, Heidelberg, 2010, pp. 68-79.
- [2] G. Pintilie, "GLUBs: Games for Learning and Understanding Biology," *Futureplay*, May. 2010.
- [3] G.D. Pintilie, J. Zhang, T.D. Goddard, W. Chiu, and D.C. Gossard, "Quantitative analysis of cryo-EM density map segmentation by watershed and scale-space filtering, and fitting of structures by alignment to regions," *Journal of Structural Biology*, Mar. 2010.
- [4] G. Pintilie, J. Zhang, W. Chiu, and D. Gossard, "Identifying components in 3D density maps of protein nanomachines by multi-scale segmentation," *Life Science Systems and Applications Workshop, 2009. LiSSA 2009. IEEE/NIH*, 2009, pp. 44-47.
- [5] G.D. Pintilie, B. Tuekam, and C.W. Hogue, "Generation of Glyphs for Conveying Complex Information, with Application to Protein Representations," *Smart Graphics*, 2005, pp. 90-102.
- [6] G. Pintilie and T. McInerney, "Interactive Cutting of the Skull for Craniofacial Surgical Planning," *Proceedings of IASTED, Biomedical Engineering*, Salzburg, Austria: Acta Press, 2003.

Honors

National Research Service Award (NRSA), Training Fellowship 2006-2007
National Science and Engineering Research Council (NSERC), Post-graduate
Scholarship 1999-2001

Conference and Workshop Presentations

April 10, 2009 - IEEE/NIH Life Science Systems & Applications Workshop (LiSSA)

Title: Identifying Components in 3D Density Maps of Protein Nanomachines by
Multi-scale Segmentation

August 5, 2007 - Multiscale Theory, Simulation, and Reality at the Nano-Bio
Interface - National Center for Supercomputing Applications (NCSA),
University of Illinois at Urbana-Champaign

Title: Using molecular dynamics to study conformational changes in proteins

August 24, 2005 - 5th International Symposium on Smart Graphics

Title: Generation of Glyphs for Conveying Complex Information, with Application to
Protein Representations

June 26, 2003 - The IASTED International Conference on Biomedical Engineering

Title: Interactive Cutting of the Skull for Craniofacial Surgical Planning

Research and Teaching Experience

Teaching Assistant, September – December, 2009

Massachusetts Institute of Technology

Course Directors: Fredo Durand, Jaakko Lehtinen

Course: 6.837, Computer Graphics. I taught an introductory class on linear algebra, helped students at weekly office hours, and helped to create material for assignments.

Bioinformatics Research and Development, May 2002 – August 2005

Blueprint Initiative, Toronto, ON, Canada

Principal Investigator: Dr. Christopher Hogue

I developed a method for mining databases such as SCOP (structural classification of proteins), GO (gene ontology), and PDB (protein databank) for information related to proteins. The information was combined to create 2-dimensional geometrical representations, which we called *proteoglyphs*.

Teaching Assistant, September – December, 1999, 2000

University of Toronto, Canada

Course Director: Dr. Alejo Hausner

I taught weekly tutorial sessions, which emphasized problem solving skills, and helped students with course material. The course was the 4th year Computer Graphics course.

Research Assistant, May - August 1999

Vision Graphics and Robotics Lab, York University, Toronto, Canada

Supervisor: Dr. Michael Jenkins

I developed methods for building virtual reality simulations. The tools were used to analyze how humans respond to virtual environments, and included the use of head-mounted displays and 3D tracking equipment.

Research Assistant, January 1997 - May 1999

Human Performance Lab, York University, Toronto, Canada

Supervisor: Dr. James Elder

I developed methods for psychophysics experiments related to human vision, in particular on the perception of shadows.

Hobbies

I am very much an outdoors person. When I'm not working, I'm outside jogging, cycling, or just enjoying the scenery and fresh air with friends and family.