# DAVID J. HARMON

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## Education

### COLUMBIA UNIVERSITY — September 2005 - May 2010

**Ph.D. Computer Science, 2010**
Dissertation: "Robust, Efficient, and Accurate Contact Models"
Advisor: Prof. Eitan Grinspun
**M.S. Computer Science, 2006**

### WOFFORD COLLEGE — September 2001 - May 2005

**B.S. Computer Science & Mathematics,**
**Emphasis in Computational Science, 2005**
*Magna Cum Laude*

## Research interests

My research interests are in computer graphics and physical simulation. In particular, my research focuses on building efficient computational models for the simulation of contact for deformable bodies, rigid bodies, and rod structures.

## Professional experience

### NEW YORK UNIVERSITY — June 2010 - present

**Postdoctoral Researcher, Courant Institute of Mathematical Sciences**
Host: Prof. Denis Zorin

### COLUMBIA UNIVERSITY — September 2005 - May 2010

**Graduate Student Researcher, Department of Computer Science**
Advisor: Prof. Eitan Grinspun

### WETA DIGITAL LTD. — June - August 2009

**Contractor, Simulation Group**
Wellington, New Zealand

WALT DISNEY ANIMATION STUDIOS June - August 2006

**Summer Intern, Simulation Technologies**
Burbank, California

JET PROPULSION LABORATORY June - August 2004

**Summer Undergraduate Research Fellow, Tactical Mission Planning Team**
Pasadena, California

# Publications

"Asynchronous Contact Mechanics", **D. Harmon**, E. Vouga, B. Smith, R. Tamstorf, and E. Grinspun. *Communications of the ACM, Research Highlights, January 2012.*

"Interference Aware Geometric Modeling", **D. Harmon**, D. Panozzo, O. Sorkine, D. Zorin. *ACM Transaction on Graphics (Proceedings of SIGGRAPH Asia 2011).*

"Asynchronous Integration with Phantom Meshes", **D. Harmon**, Q. Zhou, D. Zorin. *ACM SIGGRAPH / Eurographics Symposium on Computer Animation 2011.*

"Asynchronous Variational Contact Mechanics", E. Vouga, **D. Harmon**, R. Tamstorf, and E. Grinspun. *Computer Methods in Applied Mechanics and Engineering, 2011.*

"Asynchronous Contact Mechanics", **D. Harmon**, E. Vouga, B. Smith, R. Tamstorf, and E. Grinspun. *ACM Transaction on Graphics (Proceedings of SIGGRAPH 2009).*

"Robust Treatment of Simultaneous Collisions", **D. Harmon**, E. Vouga, R. Tamstorf, and E. Grinspun. *ACM Transaction on Graphics (Proceedings of SIGGRAPH 2008).*

"Efficient Simulation of Inextensible Cloth", R. Goldenthal, **D. Harmon**, R. Fattal, M. Bercovier, and E. Grinspun. *ACM Transaction on Graphics (Proceedings of SIGGRAPH 2007).*

"Discrete Quadratic Curvature Energies", M. Wardetzky, M. Bergou, **D. Harmon**, D. Zorin, and E. Grinspun. *Computer Aided Geometric Design*, 2007.

"Discrete Quadratic Curvature Energies", M. Bergou, M. Wardetzky, **D. Harmon**, D. Zorin, and E. Grinspun. *Discrete Differential Geometry: An Applied Introduction. ACM Siggraph 2006 course notes.*

"A Quadratic Bending Model for Inextensible Surfaces, M. Bergou, M. Wardetzky, **D. Harmon**, D. Zorin, and E. Grinspun. *Symposium on Geometric Processing*, 2006.

# Honors and awards

Computing Research Association (CRA) Computing Innovation Fellowship, 2010

*Computer Aided Geometric Design* Most Cited Paper Award, 2010

Columbia University Computer Science Service Award, 2008-2009

National Science Foundation Graduate Research Fellowship, 2005

Phi Beta Kappa Honor Society, 2005

Wofford College Computer Science Department Award, 2005

Elmore and Dorothy Herbert Science Scholarship, 2003

Wofford College Old Main Scholarship, 2001

# Teaching experience

## New York University

Computer Graphics, spring 2011, Guest Lecturer

## Columbia University

Object-Oriented Programming and Design in Java, summer 2010, Guest Lecturer
Physically-Based Animation, spring 2009, Co-Instructor

## Wofford College

Modeling and Simulation for the Sciences, spring 2005, Teaching Assistant
Programming and Problem Solving, fall 2004, Teaching Assistant
Data Structures, fall 2004, Teaching Assistant

# Press

"Fit for a Princess: the Physics of Rapunzel's Gown", Scientific American Magazine, November 2010

# Professional activities

Reviewer, Eurographics 2012

Reviewer, SIGGRAPH Asia 2010-2011

Reviewer, SIGGRAPH 2007-2011

Program Committee, ACM / Eurographics Symposium on Computer Animation, 2011

Program Committee, Shape Modeling International, 2011

Reviewer, Transactions on Visualization and Computer Graphics, 2010-2011

Reviewer, SIGGRAPH Transactions on Graphics, 2009

Student Chair, Assocation of Computing Machinery, Wofford College Chapter, 2003-2005

Student Vice-Chair, Association of Computing Machinery, Wofford College Chapter, 2002-2003