Curriculum Vitae

Joseph Teran
Assistant Professor
University of California, Los Angeles
Department of Mathematics

Contact Information

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Professional Preparation

Postdoctoral Institution

- Courant Institute of Mathematical Sciences. (2005-2007)

Graduate Institution

- Stanford University. Degree: Ph.D. 2005

Undergraduate Institution

- University of California, Davis. Degree: B.S. 2000

Appointments

- Assistant Professor, Department of Mathematics, UCLA (July 2007-present).
- Visiting Member (as a National Science Foundation Mathematical Sciences Postdoctoral Research Fellow), Courant Institute of Mathematical Sciences (September 2005-June 2007).

Awards

- Discover Magazine, Top 20 Scientists Under 40 (December, 2009).
- National Science Foundation Mathematical Sciences Postdoctoral Research Fellowship (2005-2007).
- National Science Foundation Graduate Research Fellowship (2000-2003).

Current Research Support

- National Science Foundation (CCF-0830554), Theoretical Foundations: An Optimization Framework for the Estimation of Material Properties of Deformable Materials from Volumetric Measurements.
- National Science Foundation (DMS-0652427), FRG: Collaborative Research: Dynamics of elastic biostructures in complex fluids.
- Office of Naval Research (N000140310071): Level Set Methods for Fracture and Failure of Materials.

- UC Laboratory Research Program: Multiscale methods of fracture and multimaterial debris flow.
- Intel Larrabee Research Grant.

Collaborators and Other Affiliations

- *Graduate and Postdoctoral Advisors*: Ronald Fedkiw (Stanford University), Michael Shelley (CIMS,NYU), Charles Peskin (CIMS,NYU), Court Cutting (NYU School of Medicine).
- *Ph.D. students under my supervision*: Jacob Bedrossian, Alejandro Cantarero, Jeffrey Hellrung, Aleka McAdams, James von Brecht, Siwei Zhu, Yongning Zhu.
- *Postdoctoral researchers under my supervision*: Casey Richardson, Eftychios Sifakis.

Publications

- J. Teran, L. Fauci, M. Shelley, *A Numerical Study of Viscoelastic Locomotion*, Submitted.
- C. Richardson, J. Hegemann, E. Sifakis, J. Hellrung, J. Teran, *Simulating Crack Propagation with XFEM and a Hybrid Mesh*, Submitted.
- J. Bedrossian, J. Von Brecht, S. Zhu, E. Sifakis, J. Teran, *A Second Order Method for the Variable Coefficient Poisson Equation with Interfacial Discontinuities*, Submitted.
- Y. Zhu, E., Sifakis, J. Teran, A. Brandt, *An Efficient Parallelizable Multigrid Framework for the Simulation of Elastic Solids*, Accepted, ACM Transactions on Computer Graphics.
- J. Hellrung, A. Selle, A. Shek, E. Sifakis, J. Teran, *Geometric Fracture Modeling in BOLT*, ACM SIGGRAPH 2009, Sketches and Applications.
- A. Mc Adams, K. Ward, E. Sifakis, A. Selle, J. Teran, *Detail Preserving Continuum Hair Simulation*, ACM Transactions on Graphics (SIGGRAPH 2009), 28(3), 2009.
- J. Teran, C. Peskin, *Tether Force Constraints in Stokes Flow with the Immersed Boundary Method on a Periodic Domain*, SIAM Journal of Scientific Computing, 31(5), pp. 3404-3416, 2009.
- E. Sifakis, J. Hellrung, J. Teran, A. Oliker, C. Cutting. *Local Flaps: A Real-Time Finite Element Based Solution to the Plastic Surgery Defect Puzzle*, Studies in Health and Technology Informatics, 142, pp. 313-138, 2009.
- J. Teran, L. Fauci, M. Shelley, *Peristaltic Pumping and Irreversibility of a Stokesian Viscoelastic Fluid*, Physics of Fluids 20, 073101, 2008.
- E. Sifakis, S. Marino, J. Teran, *Globally Coupled Impulse-Based Collision Handling for Cloth Simulation*, ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA) edited by M. Gross and D. James, pp. 147-152, 2008.
- Z. Bao, J.-M. Hong, J. Teran, R. Fedkiw, *Fracturing Rigid Materials*, IEEE Transactions on Visualization and Computer Graphics, 13, pp. 370-378, 2007.
- R. Weinstein, J. Teran, R., Fedkiw, *Dynamic Simulation of Articulated Rigid Bodies with Contact and Collision*, IEEE Transactions on Visualization and Computer Graphics, 12, pp. 365-374, 2006.

- G. Irving, J. Teran, R. Fedkiw, *Tetrahedral and Hexahedral Invertible Finite Elements*, Graphical Models 68, pp. 66-89, 2006.
- R. Weinstein, J. Teran, R. Fedkiw, *Pre-stabilization for Rigid Body Articulation with Contact and Collision*, ACM SIGGRAPH 2005, Sketches and Applications.
- R. Bridson, J. Teran, N. Molino, R. Fedkiw, *Adaptive Physics Based Tetrahedral Mesh Generation Using Level Sets*, Engineering with Computers, 21 pp. 2-18, 2005
- S. Blemker, J. Teran, E. Sifakis, R. Fedkiw and S. Delp, *Fast 3D Muscle Simulations Using a New Quasistatic Invertible Finite-Element Algorithm*, International Symposium on Computer Simulation in Biomechanics, 2005.
- J. Teran, E. Sifakis, G. Irving and R. Fedkiw, *Robust Quasistatic Finite Elements and Flesh Simulation*, ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA) edited by K. Anjyo and P. Faloutsos, pp. 181-190, 2005.
- J. Teran, E. Sifakis, S. Blemker, V. Ng Thow Hing, C. Lau and R. Fedkiw, *Creating and simulating skeletal muscle from the Visible Human Data Set*, IEEE Transactions on Visualization and Computer Graphics, 11, pp. 317-328, 2005.
- G. Irving, J. Teran, R. Fedkiw, *Invertible Finite Elements for Robust Simulation of Large Deformation*, ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA), edited by R. Boulic and D. Pai, pp. 131-140, 2004.
- N. Molino, R. Bridson, J. Teran, R. Fedkiw, *A Crystalline Red/Green Strategy for Meshing Highly Deformable Objects with Tetrahedra*, 12th International Meshing Roundtable, pp. 103-114, 2003.
- J. Teran, S. Blemker, V. Ng Thow Hing, R. Fedkiw, *Finite Volume Methods for the Simulation Skeletal Muscle*, ACM SIGGRAPH/Eurographics Symposium on Computer Animation (SCA) edited by D. Breen and M. Lin, pp. 68-74, 2003.