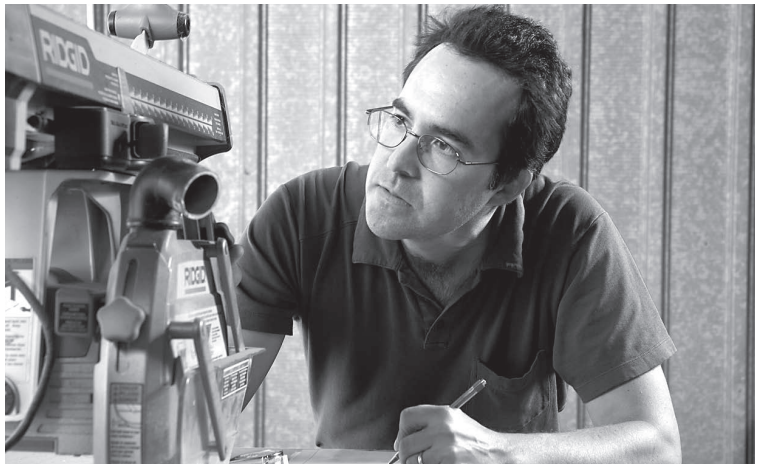
Matthew Kaplan

PIZIALI & ASSOCIATES
BIOENGINEERING AND ACCIDENT ANALYSIS

Matthew L. Kaplan, Ph.D.

Dr. Kaplan is an expert in the areas of biomechanics, injury analysis, occupant kinematics, vehicle dynamics, and accident reconstruction. As a Managing Engineer at the East Coast office of Piziali & Associates in New York, he has worked on cases involving automobiles, boats, power tools, helmets, medical devices, and numerous other products. He also has expertise in the areas of rigid body dynamics of complex three-dimensional systems, acquisition and analysis of test data, computer simulation and analysis, photogrammetry, analysis of mechanical systems, and mechanics of deformable solids. Dr. Kaplan's doctoral and postdoctoral research focused on the biomechanics of human movement and dynamic simulation. He has been a reviewer for the *Journal of Biomechanics, Journal of Multibody System Dynamics,* and the Society of Automotive Engineers, and his research has been published in peer-reviewed scientific journals and presented at national and international research conferences. Dr. Kaplan has also taught students at both the undergraduate and graduate levels.



Background and Professional Honors

B.S. (Mechanical Engineering), Yale University

M.S. (Mechanical Engineering), Stanford University

Ph.D. (Mechanical Engineering), Stanford University

Managing Engineer, Piziali & Associates, Inc.

Postdoctoral Researcher, Department of Mechanical Engineering, Instituto Superior Técnico

Postdoctoral Researcher, Department of Mechanical Engineering, Stanford University

Research Assistant, Department of Mechanical Engineering, Stanford University

Teaching Assistant, Department of Mechanical Engineering, Stanford University

Graduated *cum laude* with Honors in Mechanical Engineering, Yale University

Edgar Meakin Fellowship, Stanford University

CONTINUED

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Professional Affiliations

Reviewer, *Journal of Biomechanics*

Reviewer, *Journal of Multibody System Dynamics*

Reviewer, Society of Automotive Engineers

American Society of Mechanical Engineers (ASME)

Society of Automotive Engineers (SAE)

Selected Publications and Presentations

C.B. Hovey, M.L. Kaplan, and R.L. Piziali, "Model for Occupants Ejected from Vehicles with Roll and Yaw," American Society of Biomechanics, Stanford, CA, 2007.

M.L. Kaplan and J.H. Heegaard, "Second-Order Optimal Control Algorithm for Complex Systems," *International Journal of Numerical Methods in Engineering*, 53:2043-2060, 2002.

M.L. Kaplan and J.H. Heegaard, "Predictive Algorithms for Neuromuscular Control of Human Locomotion," *Journal of Biomechanics,* 34:1077-1083, 2001.

M.L. Kaplan and J.H. Heegaard, "Energy Conserving Impact Algorithm for the Impact Phase of Gait," *Journal of Biomechanics,* 33:771-775, 2000.

M.L. Kaplan and J.H. Heegaard, "Fast Optimal Control Algorithm for Multibody Models of the Human Musculoskeletal System," 20th International Congress of Theoretical and Applied Mechanics, Chicago, IL, 2000.

M.L. Kaplan and J.H. Heegaard, "Fast Optimal Control Algorithm for Muscle Forces and Joint Loading During Complex Human Motion," Orthopaedic Research Society 45th Annual Meeting, Anaheim, CA, 1999.

M.L. Kaplan and J.H. Heegaard, "Efficient Optimal Control Algorithm for Human Motion," PACAM VI (Pan American Congress of Applied Mechanics), Rio de Janeiro, Brazil, 1999.

J.H. Heegaard, C.B. Hovey, and M.L. Kaplan, "Fast Convergent Solvers for Augmented Lagrangian Equations in Contact Mechanics," 10th International Conference of Computational Engineering Science, Atlanta, GA, 1998.

J.H. Heegaard and M.L. Kaplan, "Energy Preserving Integration Schemes To Model Impact with Friction," 4th World Congress of Computational Mechanics, Buenos Aires, Argentina, 1998.

M.L. Kaplan and J.H. Heegaard, "Joint Loading During the Impact Phase of Gait," Orthopaedic Research Society 44th Annual Meeting, New Orleans, LA, 1998.

M.L. Kaplan, C.B. Hovey, and J.H. Heegaard, "Energy Conserving Impact Algorithm for Gait Simulation with Persistent Contact," ASME International Mechanical Engineering Congress and Exposition, Anaheim, CA, 1998.

C.B. Hovey, M.L. Kaplan, and J.H. Heegaard, "A Viscoelastic Model for Finite Deformation of Soft Tissue," ASME International Mechanical Engineering Congress and Exposition, Anaheim, CA, 1998.

J.H. Heegaard and M.L. Kaplan, "Energy Preserving Integration Schemes for Multibody Collisions with Friction," Unilateral Problems in Structural Mechanics, Ferrara, Italy, 1997.

J.H. Heegaard and M.L. Kaplan, "Computational Models for the Impact Phase of Gait," 4th U.S. National Congress of Computational Mechanics, San Francisco, CA, 1997.

M.L. Kaplan and J.H. Heegaard, "Numerical Penalty Method for the Impact Phase of Gait," 5th Pre-ORS Computational Biomechanics Meeting, Berkeley, CA, 1997.

M.L. Kaplan and J.H. Heegaard, "Fast Optimal Control Algorithm for Human Locomotion," Bay Area Biomechanics Meeting, Monterey, CA, 1997.

J.H. Heegaard, C.B. Hovey, and M.L. Kaplan, "Computer Assisted Planning for Knee Surgery: A Patient Specific Approach," International Mechanical Engineering Congress and Exposition, Atlanta, GA, 1996.