



2517 E. Rocky Slope Drive  
Phoenix, AZ 85048  
Phone 480-747-8310

[gyamaguchi@InSciTech.com](mailto:gyamaguchi@InSciTech.com)

## **Gary T. Yamaguchi, Ph.D., P.E.**

### **Professional Profile**

Dr. Gary T. Yamaguchi is an Engineer in InSciTech's Biomechanics practice and is based in Phoenix, Arizona. Dr. Yamaguchi specializes in the biomechanics and biodynamics of human injury, particularly with regard to rollover and other vehicular accidents, industrial settings, and sporting activities. He also provides expertise in accident reconstruction, fall protection, mechanical design (product liability and intellectual property issues), and rehabilitation engineering. His work includes analyses of traumatic injuries associated with transportation, the workplace, falling, outdoor recreation, consumer products, and products designed for persons with disabilities. His research activities include the development of three-dimensional human musculoskeletal models for the analysis and prediction of human movements.

Dr. Yamaguchi is currently also a Research Associate Professor in the Harrington Department of Bioengineering at Arizona State University (ASU), a member of the University of Kansas Bioengineering Advisory Board, Biomechanical Science Advisor to the USA Archery Junior Dream Team, and a member of the Biomechanics Scientific Advisory Board of the Titleist Performance Institute in Oceanside, California. Prior to joining InSciTech, Dr. Yamaguchi was a Principal Engineer at Exponent Failure Analysis Associates, an Associate Professor with tenure, Director of the Whitaker Center for Neuromechanical Control, and an Assistant Professor of Biomedical Engineering at ASU, a Rehabilitation R&D Bioengineer at the Palo Alto Veterans Administration Medical Center, a Systems Integration Engineer at the Magnetic Fusion Test Facility of Lawrence Livermore National Laboratory, and a Research Assistant at the Massachusetts Institute of Technology.

### **Academic Credentials and Professional Honors**

Ph.D., Mechanical Engineering, Stanford University, 1989

M.S., Mechanical Engineering, Massachusetts Institute of Technology, 1981

B.S., Engineering and Applied Science, California Institute of Technology, 1979

A.B., Physics, Occidental College, 1979

Lloyd L. Withrow Distinguished Speaker Award, Society of Automotive Engineers, 2008; Excellence in Oral Presentation Award, for Theoretical Analysis of a Method of Computing Dynamic Roof Crush during Rollovers; Society of Automotive Engineers, 2007; Excellence in Oral Presentation Award, for Occupant Mechanics in Rollover Simulations of High and Low Aspect Ratio Vehicles, Society of Automotive Engineers, 2006; Excellence in Oral Presentation

## **Academic Credentials and Professional Honors (*continued*)**

Award, for Electromyographic Activity and Posturing of the Human Neck during Rollover Tests; Society of Automotive Engineers, 2005; ASU Last Lecture Series Nomination, 2003; Outstanding Service and Dedication Certificate, ASU Biomedical Engineering Society Student Chapter, 1996; ASU Student Affairs Recognition Certificate, 1994, 1992; National Science Foundation Young Investigator Award, 1992; Teaching Excellence Award, ASU, 1991; O. Hugo Schuck Best Paper in Conference Award, American Automatic Control Council, 1991; Best Presentation in Session, American Controls Conference, 1990

## **Licenses and Certifications**

Fall Protection for the Competent Person, 29 CFR 1926.500, eTraining, Inc., #22296, April 25, 2012

Licensed Professional Mechanical Engineer: Arizona #49143 (2008); California #M 35961 (2012); Texas #102904 (2009)

Engineer-In-Training, #10158, State of Arizona, 2007

PC-Crash Course, Compressed Essentials and Expert Skills, MEA Forensic, Laguna Hills, CA, April 28–30, 2010

Traffic Accident Reconstruction, Northwestern University Center for Public Safety, 2008 TPI Certified Golf Biomechanist Professional, Level 2, Titleist Performance Institute, 2008 Commercial Driver's License, North Cascades National Park, 1979

## **Inventions**

Yamaguchi, GT. Limb Alignment Bushing for PSE X-Appeal Riser, September 8, 2011. Put into practice 11/29/2011 via Micro Logic Corp (eMachineshop.com).

Herring DE, Yamaguchi GT, Sitek A, McMahon BJ. Upper Extremity Prosthesis. Utility Application for U.S. Patent on Low Cost Upper Extremity Prosthesis. Docket No.: 48903/THD/A599, 37 pages, 23 figures, 15 claims, filed November 1, 2002 with the Patent and Trademark Office, U.S. Dept. of Commerce.

Yamaguchi GT, Schwatken B, Richards D. U.S. Patent 6,758,083 B2. Apparatus and Method of Dynamic Inertial Balance for Golf Clubs. Awarded July 6, 2004, filed September 11, 2002.

Yamaguchi GT, Schwatken B, Richards D. Provisional Patent filed 9/11/01, ASU case number: M2-002: Dynamic Inertial Balance for Golf Clubs.

Yamaguchi GT. Sub30 Putting Disk. Disclosure and Record of Invention filed February 27, 1995, Office of Research and Creative Activities, Arizona State University.

## **Inventions (*continued*)**

Yamaguchi GT. Mu-Putter. Disclosure and Record of Invention filed February 27, 1995, Office of Research and Creative Activities, Arizona State University.

Winter JM, Yamaguchi GT. Acceleration Threshold Recorder. Disclosure filed June 17, 1991 with Patent and Trademark Office, U.S. Department of Commerce, No. 284632.

Baldwin DE, Yamaguchi GT. Geodesic Curvature Control Coils. Disclosure and Record of Invention, filed in 1983 at Lawrence Livermore National Laboratory, #IL-7296.

## **Publications**

Hillen, BK, Jindrich, DL, Abbas, JJ, Yamaguchi, GT, Jung, R. Effects of spinal cord injury induced changes in muscle activation on foot drag in a computational rat ankle model. *J. Neurophysiology*, doi: 10.1152/jn.00507.2014, 2015.

Dainty, D, Lam, T, and Watson, H. Performance of certified climbing helmets during simulated climbing falls. *Journal of Testing and Evaluation*, V42, n.5, doi: 10.1520/JTE20130122, 2014.

Hillen, BK, Yamaguchi GT, Abbas JJ, and Jung, R. Joint-specific changes in locomotor complexity in the absence of muscle atrophy following incomplete spinal cord injury. *J. Neuroeng. Rehabil.*, doi: 10.1186/1743-0003-10-97, 2013.

Lucas SR, McGowan JC, Lam TC, Yamaguchi GT, Carver M, Hinz A. Assessment of the TASER XREP blunt impact and penetration injury potential using cadaveric testing. *Journal of Forensic Sciences*, V58, n.S1, pp. S60-S68, doi: 10.1111/j.1556-4029.2012.02298.x, 2013.

Heckman, GM, Kim, RS, Khan, FS, Bare, C, and Yamaguchi GT. Auditory localization of backup alarms: The effects of alarm mounting location. Society of Automotive Engineers, SAE 2011-01-0086, 2011.

Medora, NK, Yamaguchi, GT, and Arora, A. Conducting high frequency electrical measurements – Case study using a TASER M18 device. Proceedings of the 2010 IEEE Symposium on Product Compliance Engineering, Boston, MA, October 18–20, 2010.

Gates D, Bridges, A, Welch, DJ, Lam, T, Scher, I, Yamaguchi GT. Lumbar loads in low to moderate speed rear impacts. Society of Automotive Engineers, SAE 2010-01-0141, 2010.

## **Publications (*continued*)**

Yamaguchi GT, Ashby B, Luepke P, Moore T, Bove R, Corrigan CF. Theoretical analysis of a method of computing dynamic roof crush during rollovers. Society of Automotive Engineers, SAE 2007-01-0366, 2007.

Lachowitz M, Raney A, Yamaguchi GT. Intrinsic musculotendon pathways and parameters within the human foot. *Journal of Applied Biomechanics* 2007; 23:20-41.

Crawford NR, Yamaguchi GT, Dickman CA. Methods for determining spinal flexion/extension, lateral bending, and axial rotation from marker coordinate data: Analysis and refinement. *Human Movement Science* 2006; 15:55-78.

Yamaguchi GT, Ashby B, Lai W, Carhart M, Richards D, Corrigan CF. Occupant mechanics in rollover simulations of high and low aspect ratio vehicles. *Transactions of the Society of Automotive Engineers*, SAE 2006-01-0451, 2006.

Yamaguchi GT, Richards D, Larson RE, Carhart MR, Cargill RS, Lai W, Corrigan CF. Development of a computational method to predict occupant motions during steering-induced rollovers. Society of Automotive Engineers, SAE 2005-01-0300, 2005.

Yamaguchi GT, Carhart MR, Larson R, Richards D, Pierce J, Raasch CC, Scher I, Corrigan CF. Electromyographic activity and posturing of the human neck during rollover tests. Society of Automotive Engineers, SAE 2005-01-0302, 2005.

Sitek AJ, Herring DE, Yamaguchi GT, Willems CJ, Boninger D, Boninger RM. Development of an inexpensive upper-extremity prosthesis for use in developing countries. *Journal of Prosthetics and Orthotics* 2004; 16(3):94-102.

Mallett ES, Yamaguchi GT, Birch JM, Nishikawa K. Feeding motor patterns in anurans: Insights from biomechanical modeling. *American Zoologist* 2001; 41(6):1364-1374.

Crawford NR, Yamaguchi GT, Dickman CA. A new technique for determining 3-D joint angles: The tilt/twist method. *Clinical Biomechanics* 1999; 14(3):153-165.

Sherwood CP, Hinrichs RN, Yamaguchi GT. Relationships between ball release velocity and 3D joint kinematics in baseball throwing. *Journal of Biomechanics* 1997; 25:667.

Osterbauer P, Long K., Ribaudo T, Petermann E, Fuhr A, Bigos S, Yamaguchi GT. Threedimensional head kinematics and cervical range of motion in the diagnosis of patients with neck trauma. *Journal of Manipulative Physiol Therapy* 1996; 19(4):231-237.

## **Publications (*continued*)**

Yamaguchi GT, Moran DW, Si J. A computationally efficient method for solving the redundant problem in biomechanics. *Journal of Biomechanics* 1995; 28(8):999–1005.

Evans DL, Beakley GC, Crouch PE, Yamaguchi GT. Engineering education: Preparing for the next decade. *Engineering Education* 1993; 82(4):203–211.

Movafagh M, Yamaguchi GT. Development of neuroprosthetic arm control concepts. *Annals of Biomedical Engineering* 1991; 19(5):626 (abstract).

Yamaguchi GT, Zajac FE. Restoring unassisted natural gait to paraplegics with functional neuromuscular stimulation: A computer simulation study. *IEEE Transactions on Biomedical Engineering* 1990; 37(9):886–902.

Yamaguchi GT, Zajac FE. A planar model of the knee joint to characterize the knee extensor mechanism. *Journal of Biomechanics* 1989; 22(1):1–10.

## **Books**

Yamaguchi GT. *Dynamic Modeling of Musculoskeletal Motion—A Vectorized Approach for Biomechanical Analysis in Three Dimensions*. Springer, New York, NY, 2006 (softcover; hardcover printed in 2001 by Kluwer Academic Publishers, Norwell, MA).

## **Book Chapters**

Yamaguchi, GT, Mansfield, CT He J, et al. National Science Foundation—engineering senior design projects to aid the disabled. *Projects at Arizona State University, annual book chapter, 1991–2002*. Enderle JD, Hallowell B (eds), The National Science Foundation, Creative Learning Press.

Van der Helm FCT, Yamaguchi GT. Morphological data for the development of musculoskeletal models: An update. pp. 645-658. In: *Biomechanics and Neural Control of Posture and Movement*. Winter JM, Crago PE (eds), Springer-Verlag, New York, 2000.

Yamaguchi GT, Pandy MG, Zajac FE. Dynamic musculoskeletal models of human locomotion: Perspectives on formulation and control. pp. 205-240. In: *Adaptability of Human Gait: Implications for the Control of Locomotion*. A. Patla (ed), 1991.

Yamaguchi GT. Achieving near-normal simulated gait with reduced muscle sets. Chapter 43,

## **Book Chapters (*continued*)**

pp. 663-679. In: Multiple Muscle Systems: Biomechanics and Movement Organization. Winters J, Woo SL-Y (eds), Springer-Verlag, 1990.

Yamaguchi GT, Sawa AG-U, Moran D, Fessler M, Winters JM. A survey of human musculotendon parameters. Appendix, pp. 717-773. In: Multiple Muscle Systems: Biomechanics and Movement Organization. Winters J, Woo SL-Y (eds), Springer-Verlag, 1990.

Yamaguchi GT, Zajac FE. Restoring natural gait to paraplegics through functional neuromuscular stimulation: A feasibility study. pp. 49-57. In: Issues in the Modeling and Control of Biomechanical Systems. Stein J, Ashton-Miller J, Pandy M (eds), ASME Press, DSC-V, 17, 1989 (Invited talk with book chapter).

## **Reports**

Yamaguchi, GT. Report to D Kronengold and A Rasor of Precision Shooting Equipment, Tucson, AZ, re Production X-Appear Risers, September 22, 2011.

Yamaguchi GT, Sweeney JD, Pizziconi VB, Guilbeau EJ. Self study report, Prepared for ABET Reaccreditation of the Undergraduate Program in Bioengineering, 1996.

Yamaguchi GT, Sweeney JD, Pizziconi VB, Guilbeau EJ. Decennial review. Prepared for Bioengineering Graduate and Undergraduate Programs, 1995.

Yamaguchi GT, Schwartz AB, Allee DR, He J, Kipke DR, Si J. Final report: The Whitaker Center for Neuromechanical Control at ASU. Prepared for the Whitaker Foundation, 1995.

Yamaguchi GT, Schwartz AB, Allee DR, He J, Kipke DR, Si J. Progress Report Year 2: The Whitaker Center for Neuromechanical Control at ASU. Prepared for the Whitaker Foundation, October 15, 1995.

Schwartz AB, Yamaguchi GT, Allee DR, He J, Kipke DR, Si J. Progress Report Year 1: The Whitaker Center for Neuromechanical Control at ASU. Prepared for the Whitaker Foundation, October 17, 1994.

Yamaguchi GT. Final report: Dynamic stabilization of stance via foot placement. Prepared for The National Science Foundation, 1994.

## **Reports (*continued*)**

Yamaguchi GT. Final report: Development of dynamic musculoskeletal models for the prediction of post-surgical gaits. Prepared for the Whitaker Foundation, 1994.

Yamaguchi GT. Annual report: Undergraduate bioengineering design projects at ASU. Prepared for the National Science Foundation, 1994.

Yamaguchi GT. Final report: Development of dynamic musculoskeletal models for the prediction of post-surgical gaits, Biomedical Engineering Research Grant Final Report. Prepared for the Whitaker Foundation, 1994.

Martin PE, Yamaguchi GT, Pizziconi V. Bioengineering and exercise science at Arizona State University—An introduction to faculty research and teaching expertise. Prepared for the Muscular Dystrophy Association, 1994.

Yamaguchi GT. Progress report year 2: Dynamic stabilization of stance via foot placement. Prepared for the National Science Foundation, 1993.

Yamaguchi GT. Annual report: Undergraduate bioengineering design projects at ASU. Prepared for the National Science Foundation, 1993.

Yamaguchi GT. Annual report: Undergraduate bioengineering design projects at ASU. Prepared for the National Science Foundation, 1992.

Yamaguchi GT. Progress report year 1: Dynamic stabilization of stance via foot placement. Prepared for the National Science Foundation, 1992.

Yamaguchi GT. Progress report year 2: Development of dynamic musculoskeletal models for the prediction of post-surgical gaits. Prepared for the Whitaker Foundation, 1992.

Yamaguchi GT. Progress report year 1: Development of dynamic musculoskeletal models for the prediction of post-surgical gaits. Prepared for the Whitaker Foundation, 1991.

Horton MA, Koeneman J, Yamaguchi GT. A walker and a seat in one, NSF 1991 Engineering Senior Design Projects to Aid the Disabled, 1991.

Yamaguchi GT, Zajac FE. Feasibility and conceptual design of systems to restore natural gait to paraplegics. pp. 57-58. In: 1988 Progress Report, Rehabilitation Research and Development Center. Prepared for Veterans Administration Medical Center, Palo Alto, CA, 1988.

## **Reports (*continued*)**

Yamaguchi GT, Zajac FE. Computer simulation of knee joint mechanics. pp. 59-60. In: 1988 Progress Report, Rehabilitation Research and Development Center. Prepared for Veterans Administration Medical Center, Palo Alto, CA, 1988.

Zajac FE, Yamaguchi GT, Hoy MG. Computer simulation of knee-joint mechanics. p. 2.2.2.3. In: 1986 Progress Report, Rehabilitation Research and Development Center. Prepared for Veterans Administration Medical Center, Palo Alto, CA, 1986.

Yamaguchi GT, Hanson CL. Correction of field distortions due to magnet misalignments. Mirror Fusion Quarterly Report. Prepared for Lawrence Livermore National Laboratory, Livermore, CA 1983.

## **Presentations and Published Abstracts**

Yamaguchi, GT. Fall Dynamics, Injuries, and Fall Protection, Injury Biomechanics Seminar, Exponent Failure Analysis Associates, October 18, 2012.

Yamaguchi GT. Macroscopic modeling of muscle and tendons. Graduate course lecture for Modeling and Simulation of Physiological Systems, School of Biological and Health Systems Engineering, Arizona State University, February 29, 2012.

Yamaguchi GT. Biomechanics and the National Training System, Coaches Symposium, Olympic Training Center, Colorado Springs, CO, February 17, 2011.

Yamaguchi GT. Dynamic musculoskeletal modeling and biomechanics – or – How my Oxy physics degree got some exercise. 2010 Physics Seminar Series, Physics Department, Occidental College, Los Angeles, CA, December 1, 2010.

Yamaguchi GT. Macroscopic modeling of muscle and musculoskeletal systems. Graduate course lecture for Modeling and Simulation of Physiological Systems, School of Biological and Health Systems Engineering, Arizona State University, October 21, 2010.

Yamaguchi GT. Biomechanics and failure analysis in industry and litigation support. Lecture 1 – Overview; Lecture 2 – Using dynamic simulations to bring evidence to life; Lecture 3 – Theoretical analysis of a method of computing dynamic roof crush during rollovers. Spring Seminar Series, LeTourneau University, Longview, TX, March 26–27, 2010.



## **Presentations and Published Abstracts (*continued*)**

Lucas, SR, McGowan, JC, Lam, T, Yamaguchi, GT. Assessment of the TASER XREP impact injury potential using cadaveric testing. American Academy of Forensic Science 62nd Annual Scientific Meeting, Seattle, WA, February 22–27, 2010.

Heller, MF, George, J, Yamaguchi, GT, McGowan, JC, Prange, MT. Linear head accelerations resulting from short falls onto the occiput in children. Abstract 1115, 32<sup>nd</sup> Annual Meeting, American Society of Biomechanics, Penn State University, Aug 26-29, 2009.

Yamaguchi GT. Biomechanics, accident reconstruction, and personal injury. American Association of Legal Nurse Consultants, May 12, 2009.

Yamaguchi GT. Using biomechanical simulations to bring evidence to life. Arizona Association of Defense Counsel Advocacy Luncheon Seminar, January 8, 2009.

Applications of Kane's Method in biomechanics, sport, and accidental injury analysis. Bioengineering Graduate Program Colloquium, Department of Mechanical Engineering, University of Kansas, April 11, 2008.

Yamaguchi, GT. Applications of Kane's Method in biomechanics, sport, and accidental injury analysis. Biological Sciences Departmental Seminar Program, Northern Arizona University, April 10, 2008.

Yamaguchi GT, Hillen BK, Abbas JJ, Jung R. Effects of spinal cord injury on musculoskeletal parameters in the rodent. 37th Annual Meeting of the Society for Neuroscience, #404.20, San Diego, CA, November 3-7, 2007.

Yamaguchi GT. Development of the dynamic inertial balance for golf clubs. Arizona Technology Enterprises, Inc., January 12, 2006.

Yamaguchi GT. Biomechanics and failure analysis in industry and litigation support. Lecture 1 – Overview; Lecture 2 – Using dynamic simulations in a legal environment; Lecture 3 – Why inverse dynamics doesn't always work; Lecture 4 – Current research. Fall Seminar Series, LeTourneau University, Longview, TX, November 4–5, 2005.

Di Jorio SL, Vergason MB, Yamaguchi GT, Ryaby JT. Mitochondrial adaptation during rehabilitation and its importance in musculoskeletal modeling. XXth Congress of the International Society of Biomechanics and 29th Meeting of the American Society of Biomechanics, Cleveland, OH, July 31-August 5, 2005.

## **Presentations and Published Abstracts (*continued*)**

Yamaguchi GT. Biomechanics and failure analysis. Allstate Insurance, December 10, 2004; Arizona State University, November 10, 2004.

Yamaguchi GT. Biomechanics and failure analyses—Some new tools. Continuing Legal Education Seminar, Sanders and Parks, Phoenix, AZ, December 2, 2004.

Yamaguchi GT, Koegler P. A dynamic modeling and simulation tool for the golf swing. Callaway Golf Company, March 26, 2004.

Sitek A, Herring DE, Willems CJ, Boninger D. Development of an inexpensive upper extremity prosthesis. Proceedings, Biomedical Engineering Annual Fall Meeting, Nashville, TN, October 23-26, 2003.

Di Jorio SL, Krishnamohan V, Abbas JJ, Yamaguchi GT, Jung R. Biomechanical model of an unloaded rat hindlimb. Society for Neuroscience 31st Annual Meeting, New Orleans, LA, November 8–12, 2003.

Sitek AJ, Yamaguchi GT, Herring DE, Willems CJ, Boninger D. Design of a low-cost prosthesis for use in developing regions. 2003 Annual Fall Meeting, Biomedical Engineering Society, Nashville, TN, October 1-4, 2003.

Yamaguchi GT, Sitek A, Herring DE, Willems CJ, Boninger D. The ASU low cost prosthesis—Following a project far beyond senior design. Proceedings, Biomedical Engineering Annual Fall Meeting, Nashville, TN, October 23-26, 2003.

Yamaguchi GT. Snapshot: Design and innovation at Arizona State University. Forum on Innovation and Entrepreneurship in Biomedical Engineering Education, San Francisco, CA, January 17-18, 2003.

Yamaguchi GT. Skeletal dynamics. Discussion leader, Musculoskeletal Modeling Conference, Alfred E. Mann Institute and the University of Southern California, Venice, CA, September 13-15, 2002.

Yamaguchi GT, Kakavand A. Biomechanical measurements and dynamic modeling of the Rhesus monkey arm. Symposium on Hand and Upper Extremity I—Biomechanics, Paper #5255. Proceedings, 4th World Congress on Biomechanics, Calgary, Alberta, August 4–9, 2002.

## **Presentations and Published Abstracts (*continued*)**

Richards RD, Yamaguchi GT. Investigation of golf club inertial properties via biomechanical modeling. Paper #1104. Sport IX: Golf and Tennis, Proceedings, 4th World Congress on Biomechanics, Calgary, Alberta, August 4-9, 2002.

Yamaguchi GT. Developing dynamic musculoskeletal models for quantitative analysis in rehabilitation, sport, and exercise. Advances in Rehabilitation Technology: New Directions in the New Millennium, Teachers College, Columbia University, April 6-7, 2002.

Yamaguchi GT, Herring DR, Sitek A. ASU rehabilitation engineering projects. Exhibitor, 2001 National Assembly, American Orthotic and Prosthetic Association, Phoenix, AZ, October 24-27, 2001.

Yamaguchi GT. Kane's method and biomechanical analyses. Integrative Graduate Education and Research Training Program Seminar, Arizona State University, April 19, 2001.

Yamaguchi GT, Richards DR. Development of a dynamic method of balancing golf clubs to one another. Future of Golfers Conference, World Scientific Congress of Golf Trust, Tempe, AZ, March 11-15, 2001.

Carhart MR, Yamaguchi GT. Estimation of the muscle forces in normal human gait: Evaluation of the pseudoinverse method. Biomedical Engineering Society, 2000 Annual Fall Meeting, Seattle, WA, October 12-14, 2000; Ann Biomed Engineer 28(S1):T1.71.

Carhart MR, Yamaguchi GT. Biomechanical analysis of compensatory stepping: Implications for paraplegics standing via functional neuromuscular stimulation. 2000 Annual Fall Meeting of the Biomedical Engineering Society, Seattle, WA, October 12-14, 2000; Ann Biomed Engineer; 28(S1):T1.76.

Mowzoon M, Yamaguchi GT, Schwartz AB. Prediction of monkey upper limb muscle stress levels during reaching tasks. Arizona Neuroscience Meeting, Northern Arizona University, Flagstaff, AZ, November 6, 1999.

Yamaguchi GT. A microdrive for multiunit recording. Neural Prosthesis Conference, National Institutes of Health, Bethesda, MD, October 27-29, 1998.

Yamaguchi GT. Developing successful design projects—The perspective from a state research university. Design Projects Grantees Conference, National Science Foundation, Arlington, VA, June 24-25, 1998.

## **Presentations and Published Abstracts (*continued*)**

Movafagh M, Yamaguchi GT, Schwartz A. Simultaneous prediction of human arm trajectories and muscle stress levels. *Neuroscience Abstracts*, p. 1156, Annual Meeting, Society of Neuroscience, 1998.

Sherwood CP, Hinrichs RN, Yamaguchi GT. 3-D angular velocities most related to ball release velocity in baseball throwing. *Proceedings, 16th Congress of the International Society of Biomechanics*, Tokyo, Japan, September 1997.

Crawford NR, Yamaguchi GT, Dickman CA. A new technique for quantifying spinal coupling angles: The tilt/twist method. *Proceedings, 21st Annual Meeting of the American Society of Biomechanics*, Clemson, SC, September 24-27, 1997.

Peles JD, Crawford NR, Sonntag VKH, Dickman CA, Yamaguchi GT. Helical axis patterns for intact and destabilized cervical spine segments. *Proceedings, 21st Annual Meeting of the American Society of Biomechanics*, Clemson, SC, September 24-27, 1997.

Seidler-Dobrin RD, Yamaguchi GT, Stelmach GE. Overshooting errors in hypergravity are not explained by the reinterpretation hypothesis. *Proceedings, 21st Annual Meeting of the American Society of Biomechanics*, pp. 244-245, Clemson, SC, September 21-24, 1997.

Yamaguchi GT. The pseudo inverse algorithm and the quest for a cortically controlled prosthesis. *Medical Biomechanics Lecture Series, Department of Biomedical Engineering and Rehabilitation Medicine, Rehabilitation Institute of Chicago, Chicago, IL, May 28, 1997.*

Yamaguchi GT. Cortical control of a prosthetic/paralyzed arm: First steps to realizing the dream. *Spring Seminar Series, Department of Exercise Science, University of California at Davis, Davis, CA, May 31, 1996.*

Yamaguchi GT. The pseudo inverse optimal control algorithm: Can it be adapted for FNS systems? *First Annual Conference of the International Functional Electrical Stimulation Society*, p. 45, Cleveland, OH, May 14-16, 1996.

Taylor DM, Weber DJ, Yamaguchi GT, He J. Feasibility of hand velocity as a control parameter for upper extremity FNS. *First Annual Conference of the International Functional Electrical Stimulation Society*, p. 63, Cleveland, OH, May 14-16, 1996.

Carhart MR, Yamaguchi GT. Exploring the feasibility of reactive stepping in paraplegics. *First Annual Conference of the International Functional Electrical Stimulation Society*, p. 96, Cleveland, OH, May 14-16, 1996.

### **Presentations and Published Abstracts (*continued*)**

Yamaguchi GT, Schwartz AB, He J. Movement organization: The biomedical/biomechanical perspective. 7th Annual Spring Brain Conference, Sedona, AZ, March 6–10, 1996.

Yamaguchi GT, Kakavand A. Optimal control model of arm configuration in a reaching task. Proceedings, SPIE (International Society for Optical Engineering) Symposium on Smart Structures and Materials, Vol. 2718, pp. 552–563, San Diego, CA, February 26–28, 1996.

Carhart MR, Yamaguchi GT. Preparatory postural adjustments in perturbation induced stepping: A comparison to gait initiation. Abstract No. 275.4, Vol. 1, p. 683. In: Neuroscience Abstracts, Society for Neuroscience, San Diego, CA, November 11–16, 1995.

Lin S, Si J, Schwartz AB, Yamaguchi GT. Self-organization modeling of firing activities in primate motor cortex. Abstract No. 215.1, Vol. 1, p. 516. In: Neuroscience Abstracts, Society for Neuroscience, San Diego, CA, November 11–16, 1995.

Carhart MR, Yamaguchi GT. The motor control of stepping responses to postural perturbations. pp. 57–58. In: Proceedings, 19th Annual Meeting of the American Society of Biomechanics, Stanford University, Stanford, CA, August 24–26, 1995.

Si J, Yamaguchi GT, Moran DW. Recurrent neural networks solution to the redundant problem in biomechanics. Proceedings, 1995 SCS Western Multiconference on Health Science, Physiology and Pharmacological Simulation Studies, Society for Computer Simulations, Las Vegas, NV, January 1995.

Yamaguchi GT. Applications of control engineering and biomechanics to neuroscience. Motor Control Seminar, Northern Arizona University, Flagstaff, AZ, December 5, 1994.

Kakavand A, Yamaguchi GT, Schwartz AB. A dynamic, 3-D, 7 degree-of-freedom upper extremity model. Neuroscience Abstracts, Society for Neuroscience, Miami Beach, FL, November 13–18, 1994.

Moran DW, Yamaguchi GT. Effects of orthopaedic surgery on the musculoskeletal control strategies in children with cerebral palsy. Abstract No. 323, p. 70. In: Annals of Biomedical Engineering, BMES Annual Fall Meeting, Biomedical Engineering Society, Tempe, AZ, October 14–16, 1994.

## **Presentations and Published Abstracts (*continued*)**

Carhart M, Yamaguchi GT. The motor control of stepping responses to perturbations of posture: The “automatic” component. Abstract No. 319, p. 69. In: Annals of Biomedical Engineering, BMES Annual Fall Meeting, Biomedical Engineering Society, Tempe, AZ, October 14–16, 1994.

Crawford N, Dickman C, Yamaguchi GT. Resolution of ambiguities in the use of the Euler method and the projection method for calculating spinal coupling angles. Abstract No. 396, p. 85. In: Annals of Biomedical Engineering, BMES Annual Fall Meeting, Biomedical Engineering Society, Tempe, AZ, October 14–16, 1994.

Venkataraman S, Yamaguchi GT. An algorithm for musculoskeletal parameter extraction. Abstract No. 321, p. 69. In: Annals of Biomedical Engineering, 1994 BMES Annual Fall Meeting, Biomedical Engineering Society, Tempe, AZ, October 14-16, 1994.

Yamaguchi GT. Whitaker Center administration, site review for the Whitaker Foundation, Arizona State University, October 14, 1994.

Yamaguchi GT. Prosthetic limb control, site review for the Whitaker Foundation, Arizona State University, October 14, 1994.

Osterbauer PJ, Koepsell T, Ribaldo TA, Long K, Yamaguchi GT, Fuhr AW. Validity estimation of three dimensional head kinematics and cervical range of motion in the diagnosis of patients with acute neck injuries. Proceedings, 1994 International Conference on Spinal Manipulation, p. 7, Palm Springs, CA, June 10-11, 1994.

Long K, Ribaldo TA, Fuhr AW, Osterbauer PJ, Yamaguchi GT. Instantaneous helical axes estimation from 3-D video data in neck kinematics. 13th Southern Biomedical Engineering Conference, Washington, DC, April 16-17, 1994.

Yamaguchi GT, Moran DW, Si J. A General method for optimal musculotendon force computation. Proceedings, IFAC Symposium on Modeling and Control in Biomedical Systems, The International Federation of Automatic Control, pp. 35–36, Galveston, TX, March 27–30, 1994.

Schwartz AB, Yamaguchi GT, Allen D, Kipke D, Si J. The Whitaker Center for Neuromechanical Control at Arizona State University. Flinn Foundation Conference, Hyatt Regency Hotel, Phoenix, AZ, March 11–12, 1994.

## **Presentations and Published Abstracts (*continued*)**

Yamaguchi GT, Schwartz AB, Si J, Moran DW, Kakavand A. Developing an understanding of coordination to improve the control of prosthetic limbs. Biomechanics, Prosthetics, and Robotics Workshop, University of Arizona Health Sciences Center, February 19, 1994.

Yamaguchi GT. Your resume (and professional ethics in job searching), Biomedical Engineering Professional Seminar, January 7, 1994.

Yamaguchi GT. A method for solving the redundant problem in biomechanics without arduous optimization. Systems Science Seminar, Arizona State University, December 2, 1993.

Carhart MR, Yamaguchi GT, Green JI. Dynamic balance recovery: Stepping responses to postural perturbations. Proceedings, 17th Annual Meeting of the American Society of Biomechanics, pp. 51–52, Iowa City, IA, October 21–23, 1993.

Ribaudo T, Long K, Osterbauer P, Yamaguchi GT, Fuhr A. 1993. Three dimensional kinematic analyses of control and whiplash subjects using instantaneous helical axis parameters.

Proceedings, 17th Annual Meeting of the American Society of Biomechanics, pp. 215–216, Iowa City, IA, October 21–23, 1993.

Morgan DA, Yamaguchi GT. Development of a nine degree of freedom, 3-dimensional model for kinematic neck analysis. Proceedings, 17th Annual Meeting of the American Society of Biomechanics, pp. 219-220, Iowa City, IA, October 21–23, 1993.

Long-Derickson K, Ribaudo TA, Osterbauer PJ, Yamaguchi GT, Fuhr AW. Instantaneous helical axes patterns of whiplash and asymptomatic subjects. Proceedings, 1993 International Conference on Spinal Manipulation, pp. 33-34, Montreal, Quebec, April 30-May 1, 1993.

Osterbauer PJ, Long-Derickson K, Fuhr A, Ribaudo T, Yamaguchi GT. Correlation of 3D head kinematics with clinical assessment in acute “whiplash” patients. Proceedings, 1993 International Conference on Spinal Manipulation, pp. 35-36, Montreal, Quebec, April 30-May 1, 1993.

Venkataraman S, Yamaguchi GT, Osterbauer PJ, Fuhr AW. Evaluating mechanical force manually assisted short lever adjusting using an anthropomorphic model. Proceedings, 1993 International Conference on Spinal Manipulation, p. 13, Montreal, Quebec, April 30-May 1, 1993.

## **Presentations and Published Abstracts (*continued*)**

Derickson KL, Ribaudo TA, Osterbauer PJ, Fuhr AW, Yamaguchi GT. Instantaneous helical axes patterns of whiplash and asymptomatic subjects. Proceedings, 39th Annual Meeting, Orthopaedic Research Society, Vol. 18, p. 407, San Francisco, CA, February 15–18, 1993.

Osterbauer PJ, Koepsell TD, Bigos SJ, Long-Derickson K, Fuhr AW, Ribaudo T, Yamaguchi GT. Variation of instantaneous helical axes of motion of the cervical spine in asymptomatic subjects. Proceedings, Cervical Spine Research Society 20th Annual Meeting, p. 155, Palm Desert, CA, December 3-5, 1992.

Yamaguchi GT, Green JI, Moran DW. Development of a subject-specific, dynamic model of pathological gait. Proceedings, 2nd North American Congress on Biomechanics, pp. 399–400, Chicago, IL, August 24–28, 1992.

Moran DW, Yamaguchi GT. Determining subject-specific musculoskeletal geometric and mass properties from magnetic resonance images. Proceedings, Second North American Congress on Biomechanics, pp. 89–90, Chicago, IL, August 24–28, 1992.

Green JI, Yamaguchi GT, DeWitt JK. The effects of bilateral asymmetry on a model of the counter movement jump. Proceedings, Second North American Congress on Biomechanics, pp. 543-544, Chicago, IL, August 24-28, 1992.

Venkataraman S, Yamaguchi GT, Osterbauer PJ, Fuhr AW. Evaluating mechanical force manually assisted short lever adjusting using an anthropomorphic model. Proceedings, 1992 International Conference on Spinal Manipulation, p. 136, Chicago, IL, May 15-17, 1992.

Yamaguchi GT. How a biomechanical engineer can help the plaintiff. Learn at Lunch Seminar Series, AZ Trial Lawyers Association, Tucson, AZ, January 7, 1992.

Yamaguchi GT. Biomechanical research at Arizona State University. Neuromuscular Systems Seminar, Rehabilitation Research and Development Center, Veterans Affairs Medical Center, Palo Alto, CA, 1992.

Yamaguchi GT. Feasibility of FNS for dynamic stabilization of stance in paraplegics. 1991 Fall Meeting of the Biomedical Engineering Society, Charlottesville, VA, October 1991.

DeWitt JK, Yamaguchi GT, Hinrichs RN. A 3-D simulation of a soccer kick. Proceedings, American Society of Biomechanics, pp. 128–129, Tempe, AZ, October 16–18, 1991.



## **Presentations and Published Abstracts (*continued*)**

Marsh AP, Yamaguchi GT. A 3-D model of the lower limb in a cycling movement. Proceedings, American Society of Biomechanics, pp. 214-215, Tempe, AZ, October 16–18, 1991.

Yamaguchi GT. Where is rehabilitation engineering? Presented to the supervisors of the Rehabilitation Services Administration, Arizona Department of Economic Security, Phoenix, AZ, September 10, 1991.

Yamaguchi GT, Zajac FE. Modeling FES actuation and control of multisegment limb movements. Proceedings, American Control Conference, Vol. 2, pp. 1048–1053, San Diego, CA, May 23–25, 1990.

Weaver KM, Haynes RJ, Hansen T, Yamaguchi GT, Green J, Moran D. The effect of a shoe lift on gait in spastic hemiplegia. Proceedings, American Academy of Pediatrics, Section on Orthopaedics, p. 42, New Orleans, LA, October 26–27, 1991.

Yamaguchi GT. Energy storage and expenditure in musculotendinous actuator models during walking simulations. Proceedings, 1st World Congress on Biomechanics, Vol. II, p. 241, La Jolla, CA, August 30–September 4, 1990.

Yamaguchi GT, Zajac FE. Dynamic simulation of unsupported paraplegic gait enabled via FNS. Proceedings, 1st World Congress of Biomechanics, Vol. II, p. 357, La Jolla, CA, August 30–September 4, 1990.

Yamaguchi GT, Zajac FE. Sensitivity of simulated human gait to neuro-muscular control patterns. Paper #166. XII International Congress of Biomechanics, Los Angeles, CA, June 26-30, 1989.

Yamaguchi GT, Zajac FE. The effects of patellar size and patellar ligament length on knee joint mechanics—Implications for rehabilitation. Proceedings, 10th Annual Conference on Rehabilitation Engineering (RESNA), San Jose, CA, June 19–23, 1987.

Yamaguchi GT, Hoy MG, Zajac FE. Simulation of knee joint mechanics in two dimensions. Proceedings, North American Congress on Biomechanics, pp. 95–96, Montreal, Quebec, August 25–27, 1986.

Osher JE, Hooper, Jr., EB, Pickles WL, Yamaguchi GT. Diagnostic and trim coil requirements for magnetic field alignment for MFTF. Proceedings, 26th Annual Meeting, Division of Plasma Physics, American Physical Society, Boston, MA, October 29–November 2, 1984.

## **Presentations and Published Abstracts (*continued*)**

Yamaguchi GT, Baldwin DE. Trim coils and magnet alignment in MFTF-B. Proceedings, 10<sup>th</sup> IEEE Symposium on Fusion Engineering, Philadelphia, PA, December 5–9, 1983.

## **Peer Reviewer**

*Annals of Biomedical Engineering, ASME Journal of Biomechanical Engineering, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Rehabilitation Engineering, Journal of Applied Biomechanics, Journal of Biomechanics, Journal of Neurophysiology, Journal of Optimization Theory and Applications, Medicine and Science in Sports and Exercise, Society of Automotive Engineers*

## **Proposal Reviewer**

National Institutes of Health, National Science Foundation, National Institute on Disability and Rehabilitation Research, Canadian Institutes of Health Research

## **Professional Affiliations (\* - inactive)**

American Society of Biomechanics\* (Awards Committee member 1994, 2003, Nominations Committee 2003)

American Society of Mechanical Engineers

American Society for Testing and Materials (Committee F-08: Sports Equipment and Facilities)

Biomedical Engineering Society\*

Forensic Expert Witness Association

International Functional Electrical Stimulation Society\*

Rehabilitation Engineering Society of North America\* (Biomechanics Special Interest Group Chairperson 1988, Vice-Chair 1987)

Society of Automotive Engineers

Society for Neuroscience\*

Sigma Xi Honor Society\*

Sigma Pi Sigma\* (physics honor society)