

KEVIN W. HOLLANDER, PhD
Senior Consulting Engineer
Augspurger Komm Engineering, Inc.
& BTI Consultants
3315 E. Wier Avenue
Phoenix, AZ 85040
(602) 443-1060
(602) 443-1074 fax
www.AKEINC.com

Education

Ph.D. in Mechanical Engineering, ARIZONA STATE UNIVERSITY, 2005
M.S. in Mechanical Engineering, UNIVERSITY OF NEW MEXICO, 1997
B.S. in Mechanical Engineering, UNIVERSITY OF MISSOURI, 1994

Summary

For more than 15 years Dr. Hollander has had extensive experience in analyzing and modeling, both biological and mechanical systems, as well as their interactions. This experience has included the design and development of numerous mechanical devices, robots and electronic measurement instruments.

At Augspurgen Komm Engineering, Inc. his broad skill set and knowledge has been applied to the analysis of vehicular accidents/reconstruction, tire failures, equipment fires/failures and related personal injury.

Experience

2006-Present	Augspurger Komm Engineering, Inc., Consulting Engineer
2002-2005	Infinia Solutions, Inc., President
1998-2002	Barnes-Jewish Hospital, Clinical Research Manager/Engineer
1997	Saint Charles Community College, Adjunct Faculty in Mechanical Design
1996-1997	Independent Consulting
1992	Union Electric, Co. - Rush Island Power Plant, Engineer
1991	GenCorp Automotive, Engineer

Professional Affiliations

American Society of Mechanical Engineers (ASME Member)
American Society of Testing and Materials (ASTM) International
Mechanical Engineering Graduate Association (MEGA), President
1996-1997

Professional Affiliations (Continued)

Society of Automotive Engineers (SAE Member) International
- UNM Formula Car Team Advisor 1996-1997

Seminars

Vehicle Accident Reconstruction Methods, April 19-20, 2007 -
Society of Automotive Engineers (SAE), Detroit, MI.
Introduction to PC Crash and PC-Rect, August 22-23, 2006 - MEA
Introduction to Major Testing Techniques for Plastics, September
20-22, 2005
ASTM International, San Diego, CA.

Awards

2005 Second Place, ASME Student Mechanism Design Competition
(Graduate Division)
1997 Regional Award, ASME New Mexico Senior Section Web Page

Professional Activities

Reviewer for various IEEE, ASME conference and journal
publications
2005 ASME IDETC Session Co-Chair

Thesis Topics

2005 Ph.D. Thesis, Development of Compliant Actuation Systems
for Wearable Robotics Applications
1997 Masters Thesis, Mechanical Loading of Tendon: Experimental
Apparatus and Modeling
1994 Undergraduate Research, Cortical Bone as an Engineering
Material

Books/Chapters

Hollander, KW, and Sugar TG, 2007, "Chapter 12: Powered Human
Gait Assistance", In Kommu, SS, (ed.), *Rehabilitation Robotics*,
I-Tech Education and Publishing, pp. 203-220.

Journal Publications

Vanderborght, B, Van Ham, R, Sugar, TG, Hollander, KW and
Lefeber, D, *Accepted*, "Comparison of Mechanical Design and Energy
Consumption of Adaptable Passive Compliant Actuators."
International Journal of Robotics Research.

Journal Publications (Continued)

Standeven, JW, Engsberg, JR, Lefrak, SS, Wagner, JM, Hollander, KW and Cooper, JD, *Submitted*. "Chest Wall Mechanics Imaged by Video Motion Capture." *Journal of Applied Biomechanics*.

Hollander, KW, Ilg, R, Sugar, TG, Herring, DE. 2006. "An Efficient Robotic Tendon for Gait Assistance." *ASME Journal of Biomechanical Engineering*, 128(5), pp. 788-791, October.

Hollander, KW and Sugar, TG. 2006. "Design of Lightweight Lead Screw Actuators for Wearable Robotic Applications." *ASME Journal of Mechanical Design*, 128(5), pp. 644-648, May.

Engsberg, JR, Lenke, LG, Hollander, KW, Urich, ML, Commean, PK, Lee, JR, Bae, KT. 2003. "Methods to Locate Center of Gravity in Scoliosis". *Spine*, 28(23), pp. E483-489, December.

Hampton, DA, Hollander, KW, Engsberg, JR. 2003. "Equinus Deformity as a Compensatory Mechanism For Ankle Plantarflexor Weakness." *Journal of Applied Biomechanics*, 19(4), pp. 325-339.

Engsberg, JR, Lenke, LG, Reitenbach, AK, Hollander, KW, Bridwell, KH, Blanke, K. 2002. "Prospective Evaluation of Trunk Range of Motion in Adolescents with Idiopathic Scoliosis Undergoing Spinal Fusion Surgery." *Spine*. 27(12), pp.1346-1354.

Engsberg, JR, Wagner, JM, Reitenbach, AK, Hollander, KW, Standeven, JW. 2001. "A Measure of Motor Control at the Knee in Cerebral Palsy." *Journal of Applied Biomechanics*. 17(4), pp.335-343.

Engsberg, JR, Ross, SA, Hollander, KW, Park, TS, 2000, "Hip Spasticity and Strength in Children with Spastic Diplegia Cerebral Palsy", *Journal of Applied Biomechanics*, 16(3), pp. 221-233.

Conference Publications/Presentations (Peer Reviewed)

Holgate, M, Hitt, J, Bellman, R, Sugar, TG, Hollander, KW, 2008, "The SPARKy (Spring Ankle with Regenerative Kinetics) Project: Choosing a DC Motor Based Actuation Method", *IEEE International Conference on Biomedical Robotics and Biomechatronics (BIOROB2008)*, Scottsdale, AZ, October.

Conference Publications/Presentations (Peer Reviewed)(Continued)

Boehler A, Hollander K, Sugar T, Shin D, 2008, "Design, Implementation and Test Results of a Robust Control Method for a Powered Ankle Foot Orthosis (AFO)", IEEE International Conference on Robotics and Automation (ICRA2008), Pasadena, CA, May.

Hitt, J, Bellman, R, Holgate, M, Sugar, TG, Hollander, KW, 2007, "The SPARKY (Spring Ankle with Regenerative Kinetics) Project: Design and Analysis of a Robotic Transtibial Prosthesis with Regenerative Kinetics", #DETC2007-34512, ASME International Design Engineering Technical Conference (IDETC2007), Las Vegas, NV, September.

Hollander, KW, Sugar, TG. 2007. "A Robust Control Concept for Robotic Ankle Gait Assistance" International Conference of Rehabilitation Robotics (ICORR2007), Noordwijk, Netherlands, June.

Hitt, J, Oymagil, AM, Sugar, T, Hollander, K, Boehler, A, Fleegeer, J,. 2007. "Dynamically Controlled Ankle-Foot Orthosis (DCO) With Regenerative Kinetics: Incrementally Attaining User Portability." IEEE International Conference on Control and Automation (ICRA2007), Roma, Italy, April.

Hollander, KW, Sugar, TG, Herring, DE. 2005. "A Robotic 'Jack Spring' for Ankle Gait Assistance." #DETC2005-84492, ASME International Design Engineering Technical Conference (IDETC2005), Long Beach, CA, September.

Hollander, KW and Sugar, TG. 2005. "Design of Lead Screw Actuators for Wearable Robotic Applications." #DETC2005-84595, ASME International Design Engineering Technical Conference (IDETC2005), Long Beach, CA, September.

Hollander, KW, Sugar, TG, Herring, DE. 2005. "Robotic 'Jack Spring' for Ankle Gait Assistance." International Conference of Rehabilitation Robotics (ICORR2005), Chicago, IL, June.

Hollander, KW, Sugar, TG. 2005. "Design of the Robotic Tendon." Design of Medical Devices Conference (DMD2005), Minneapolis, MN, April.

Conference Publications/Presentations (Peer Reviewed)(Continued)

Bharadwaj, K, Hollander, KW, Mathis, C, Sugar, TG. 2004. "Spring over Muscle (SOM) Actuator for Rehabilitation Devices." IEEE Engineering in Medicine and Biology Society (EMBS2004), San Francisco, CA, September.

Hollander, KW, Sugar, TG. 2004. "Concepts for Compliant Actuation in Wearable Robotic Systems", Invited Paper, US-Korea Conference on Science, Technology and Entrepreneurship (UKC2004), Research Triangle Park, NC, August.

Standeven, JW, Engsberg, JR, Lefrak, SS, Wagner, JM, Hollander, KW, Cooper, JD. 2004. "Quantifying Pulmonary Function During Gait Using Video Motion Capture." Gait and Clinical Movement Analysis Society (GCMAS2004), Lexington, KY, April.

Wang, Z, Hollander, KW, Sugar, TG. 2003, "A Novel Omni-Directional Perturbation Platform." Proceedings of Intelligent Robots and Systems (IROS2003), Las Vegas, NV, October.

Engsberg, JR, Lenke, LG, Hollander, KW, Uhrich, ML, Comean, PD, Bae, KT. 2002. "Center of Gravity (COG) in Scoliosis." Presented at the Scoliosis Research Society annual meeting. Seattle, WA

Engsberg, JR, Lenke, LG, Hollander, KW, Uhrich, ML, Bridwell, KH. 2002. "Changes in Trunk Range of Motion following Anterior or Posterior Spinal Fusion in Adolescent Idiopathic Scoliosis." Presented at the Scoliosis Research Society annual meeting. Seattle, WA

Engsberg, JR, Lenke, LG, Hollander, KW, Reitenbach, AK, Bridwell, KH. September, 2001. "Trunk Motion in Adolescents Undergoing Scoliosis Spinal Fusion." Presented at the Scoliosis Research Society Annual Meeting. Cleveland, Ohio.

Engsberg, JR, Ross, SA, Hollander, KW, Park, TS. September, 2000. "Hip Abductor/Adductor Spasticity and Strength in Children with and without Cerebral Palsy." Presented at the American Academy of Cerebral Palsy and Developmental Medicine Annual Meeting. Toronto, Canada.

Wagner, JM, Engsberg, JR, Hollander, KW, Olree, KS. August, 1999. "A Method for Quantitative Analysis of Continuous Kinematic Gait

Variables." Presented at the International Society of Biomechanics Convention. Calgary, Canada.

Kevin Hollander, Ph.D

Page 6 of 6

Invited Talks

MAE Seminar, 2005. "Robotic Tendon for Ankle Gait Assistance."
Arizona State University, February.

Lecture, 2003. "Current Research in Robotics". Tempe Public
Library, September.

Lecture Series, 2003. "MAE 446: Lectures on ANSYS/FEA". Arizona
State University, Spring.

Rev. 08/08