Eric R. Wade

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Summary of Contents

EDUCATION

Doctor of Philosophy, Department of Mechanical Engineering
Massachusetts Institute of Technology
Cambridge, MA, Sept. 2004–Feb. 2007
Advisor: H. Harry Asada
Thesis: *Wearable Health Monitoring System: DC Power–Line Communication Network utilizing Electrically Conductive Fabric Transmission Media*

Master of Science, Mechanical Engineering
Massachusetts Institute of Technology
Cambridge, MA, Sept. 2000–Sept. 2004
Advisor: H. Harry Asada
Thesis: *DC Powerline Communication System using a Transmission Line Transformer for High Degree of Freedom Applications*

Master of Science, Electrical Engineering
Massachusetts Institute of Technology
Cambridge, MA, Sept. 2000–Sept. 2004
Advisor: H. Harry Asada
Thesis: *DC Powerline Communication System using a Transmission Line Transformer for High*

Degree of Freedom Applications

Bachelor of Science, Mechanical Engineering
Massachusetts Institute of Technology
Cambridge, MA, Sept. 1996–Jun. 2000

PROFESSIONAL EXPERIENCE

Assistant Professor, Dept. of Mechanical Engineering
California Polytechnic University, San Luis Obispo
San Luis Obispo, CA, Sept. 2019–present

Adjunct Associate Professor, Dept. of Mechanical, Biomedical, and Aerospace Engineering
University of Tennessee
Knoxville, TN, Aug. 2019–present

Assistant Professor, Dept. of Mechanical, Biomedical, and Aerospace Engineering
University of Tennessee
Knoxville, TN, Aug. 2013–2019

Postdoctoral Fellow, Division of Biokinesiology and Physical Therapy, Dept. of Computer Science
University of Southern California
Los Angeles, CA, Jul. 2009–Jul. 2013
Advisor: Carolee J. Winstein
Co-Advisor: Maja J. Matarić
Research: *Wearable Sensors for Ambient Monitoring of Individuals Post–Stroke*

Postdoctoral Fellow, Dept. of Computer Science
University of Southern California
Los Angeles, CA, Feb. 2007–Jul. 2013
Advisor: Maja J. Matarić
Research: *Socially Assistive Robotics for Post–Stroke Rehabilitation*

OTHER PROFESSIONAL EXPERIENCE

Consultant, CipherSkin Knoxville, TN, Feb. 2018–present

Consultant, ipCapital Group Knoxville, TN, Dec. 2014–present

Intern, Lawrence Livermore National Laboratories Livermore, CA, Jun.–Aug. 1999

Intern, Boeing Flight Systems Seattle, WA, Jun. 1998–Aug. 1998

Intern, Amoco Polymers Alpharetta, GA, Jul.–Sept. 1997

TEACHING EXPERIENCE

University Courses

ME212, *Engineering Dynamics*, Analysis of motions of particles and rigid bodies encountered in engineering. Velocity, acceleration, relative motion, work, energy, impulse, and momentum. Further development of mathematical modeling and problem solving. Vector mathematics where appropriate.

ME305 *Introduction to Mechatronics*, introduction to microcontrollers and assembly language programming. Emphasis on components and techniques for interfacing that are typical of embedded microcontroller applications (A/D conversion, D/A conversion, interrupts, timers, and pulse-width modulation). Laboratory exercises involve real-time interfacing of microcontrollers to external mechanical and/or electromechanical devices.

ME318, *Mechanical Vibrations*, Free and forced vibration response of single and multiple degree of freedom systems. Experimental studies of the dynamic behavior of structures and machines. Instrumentation methods utilized in field and laboratory.

ME463, *Mechanical Vibrations*, Free and forced response of systems with multiple degrees of freedom. Response to arbitrary excitation. Lagrange's equations. Introduction to continuous systems. Vibration absorbers and rotor balancing.

ME451, *Control Systems*, Analysis and design of feedback control systems using transient and frequency response techniques. Stability analysis in the time and frequency domain.

ME647, *Nonlinear Control*, Qualitative behavior of nonlinear systems; Lyapunov stability theory; passivity and absolute stability theory; frequency domain methods; nonlinear feedback systems; nonlinear design techniques.

ME410, *Professional Topics*, Topics relating to professional responsibility and communications, and organization. Requires a formal oral presentation by each student on an engineering topic chosen by the student and approved by the instructor.

ME449, *Mechanical Engineering Laboratory*, Designing, conducting, and reporting results of experimental exercises. Analysis of data and formation of conclusions.

ME450, *Mechanical Engineering Design I*, Design process, synthesis, and design studies.

ME460, *Mechanical Engineering Design II*, Synthesis and design of a complete mechanical engineering system. Participation in team design effort, including formal oral presentations and written design report.

Other Teaching

Guest Lecturer, *Business Entrepreneurship 557, Technology Commercialization*, Marshall School of Business, University of Southern California, Los Angeles, CA, Fall 2011

Guest Lecturer, *ENGR 499, Engineering Science and Systems*, Viterbi School of Engineering, University of Southern California, Los Angeles, CA, Fall 2007

Teaching Assistant, *2.12: Undergraduate Robotics Lab*, Mechanical Engineering Department, Massachusetts Institute of Technology, Cambridge, MA, Fall 2005

Instructor, *Introduction to Robotics*, MIT Saturday Engineering Enrichment and Discovery Program, Massachusetts Institute of Technology, Cambridge, MA, Spring 2006

GRANTS & CONTRACTS

Current

Believe, Educate & Empower, Advocate, Collaborate, Nurture (BEACoN) Research Award, "Social Robotics for Motor Rehabilitation," PI: E. Wade, $1000, Winter, 2020.

University of Tennessee Office of Undergraduate Education, "Development of a Human Robot Framework for Speech Practice in Children with Complex Communication Needs," PI: E. Wade, $2,000, Fall 2018.

American Society of Neurorehabilitation, Clinical Research Network Task Force, "Assessment of Interlimb coordination in Adults with Hemiplegia," PI: S. Duff, Co–PI: E. Wade. $5,000, Nov. 2016–Nov. 2017.

NIH (NICHD) #EB022336–01 R15, "Quantifying and Reducing Motor Compensation After Stroke in Ambient Settings," PI: E. Wade. $349,048, July 2016–June 2019.

NSF (Smart and Connected Health) #1502242, "Contingent Cueing for the Alleviation of Symptoms of Parkinson's Disease in Ambient Settings," PI: E. Wade, Co–PI: J. Tan. $551,196, Sept. 2015–Aug. 2018.

Construction Industry Research & Policy Center (UTK), "Attentional Focus and Falls: A Study of the Relationship Between Attention and Ladder Climbing Stability," Co–PI: E. Wade, Co–PI: J. Fairbrother. $29,720, 7/1/2014–present.

NSF CAREER #1844459, "CAREER: A Closed-Loop Control Framework for the Treatment of Chronic Stroke," PI: E. Wade. $547,202, 6/15/2019–5/31/2024.

Completed

University of Tennessee Office of Undergraduate Education, "Robotics for Children with Complex Hearing Impairments," PI: E. Wade, $2,000, Fall 2017.

American Physical Therapy Association, Academy of Hand and Upper Extremity, "Assessment of Interlimb coordination in Children and Adults with Hemiplegia," PI: S. Duff, Co–PI: E. Wade. $4,988, Nov. 2016–Nov. 2017.

Boston Rehabilitation Outcomes Measurement Pilot Project, NIH R24 HD05688, "Tools to quantify gait behaviors in individuals recovering from anterior cruciate ligament reconstruction," PI: S. Sigward, $30,000, 2014–2015.

Neuroscience Network of East Tennessee (UTK), "Stroke and Neurorehabilitation," PI: E. Wade, Co–PI: J. Tan. $17,000, 1/2/14–6/30/14.

PUBLICATIONS

Refereed Journal Papers

[J1] Naghavi, N., Miller, A., and **Wade, E.**, *Towards Real–Time Prediction of Freezing of Gait in Patients with Parkinson's Disease: Addressing the Class Imbalance Problem*, MDPI Sensors, 19(18), 2019, DOI: https://doi.org/10.3390/s19183898.

[J2] Naghavi, N. and **Wade, E.**, *Prediction of Freezing of Gait in Parkinson's Disease Using Statistical Inference and Lower–Limb Acceleration Data*, IEEE Transactions on Neural Systems and Rehabilitation Engineering (TNSRE), 27(5), 2019, pp.947–955.

[J3] Totty, M. and **Wade, E.**, *Muscle Activation and Inertial Motion Data for Non–Invasive Classification of Activities of Daily Living*, IEEE Transactions on Biomedical Engineering (TBME), 2017, DOI: 1109/TBME.2017.2738440.

[J4] Chen, Y. A., Chung, Y. C., Proffitt, R., **Wade, E.**, Winstein, C., *Attentional Demand of a Virtual Reality–Based Reaching Task in Non-Disabled Elders*, Journal of Motor Learning and Development (JMLD), 3(2), 2016, pp.91–109.

[J5] Vaz, C., and **Wade, E.**, *Design of a Low–Cost Social Robot for Children With Complex Communication Needs*, Journal of Medical Devices, 2016, 10(3), DOI: 10.1115/1.4033765.

[J6] Hemmati, S., and **Wade, E.**, *A Wavelet Transform–Based Approach for Detecting Postural Transitions in Patients Following Anterior Cruciate Ligament Reconstruction*, Journal of Medical Devices, 2016, 10(3), DOI: 10.1115/1.4033764.

[J7] Yang, H., Sawhney, R., Ji, S., **Wade, E.** *Development of Walking in Place System based on Zero Crossing Algorithm*, International Journal of Virtual Reality (IJVR), 15(2), 2015, pp.30–43.

[J8] Sanders–Holly, C., **Wade, E.** *Commentary on: Perceptions of equine-assisted activities and therapies by parents and children with spinal muscular atrophy.* Pediatr. Phys. Ther., 26(2), Summer, 2014, pp.244.

[J9] **Wade, E.**, Chen, C., and Winstein, C. J., *Spectral Analyses of Wrist Motion Data in Individuals Post Stroke: Developing a Performance Measure for Unsupervised Settings*, Neurorehabilitation and Neural Repair (NNR), 28(2), Feb., 2014, pp.169–178.

[J10] **Wade, E.**, Parnandi, A. R., Mead, R., and Matarić, M. M., *Socially Assistive Robotics for Guiding Motor Task Practice*, Paladyn Journal of Behavioral Robotics (JBR), 2(4), 2011, pp.218–227.

[J11] **Wade, E.**, and Winstein, C. J., *Virtual Reality and Robotics for Stroke Rehabilitation: Where Do We Go from Here?*, Topics in Stroke Rehabilitation (TSR), 18(6), Nov.–Dec., 2011, pp.685–700.

[J12] **Wade, E.**, and Asada, H. H., *Conductive Fabric Garment for a Cable–Free Body Area Network: Conductivity Analysis for DC Power–Line Communication over Fabric Media*, IEEE Pervasive Computing (PC), 6(1), Jan.–Mar., 2007, pp.52–58.

[J13] **Wade, E.**, and Asada, H. H., *Design of a Broadcasting Modem for a DC PLC Scheme*, IEEE/ASME Transactions on Mechatronics, 11(5), Oct. 2006, pp.533–540.

Book Chapters

[B1] **Wade, E.** et al., "Assisted Ambient Living Applied to Remote Motor Rehabilitation" Handbook on Ambient Assisted Living, IOS Press, Vol. 11: Handbook of Ambient Assisted Living, 2012, 567–580.

[B2] **Wade, E.** et al., "Power Line Communications for Wearable Applications." Power Line Communications, John Wiley and Sons, 2010.

Refereed Conference Papers & Abstracts

[C1] Miller, A., Quinn, L., Duff, S., **Wade, E.**, *Comparison of Machine Learning approaches for Classifying Upper Extremity Tasks in Individuals Post-Stroke.* In proceedings, 42^{nd} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Montreal, CA, Jul. 2020.

[C2] Waters, E. and **Wade., E.**, *Self-Efficacy and Kinematics: Establishing a Relationship between Kinematics and Task Challenge of a Goal Directed Reaching Task in Unimpaired Adults.* In proceedings, 2019 IEEE Symposium Series on Computational Intelligence, Xiamen, China, Dec. 2019.

[C3] Naghavi, N., Borhani, S., and **Wade, E.**, *Improving Machine Learning Based Detection of Freezing of Gait Using Data Synthesis Methods.* In proceedings, 18^{th} IEEE International Conference on Machine Learning and Applications (ICMLA), Dec. 2019, Boca Raton, Florida, USA.

[C4] Naghavi, N., and **Wade, E.**, *Gait Abnormality Detection in Patients with Parkinson's Disease*, American Society of Neurorehabilitation, Chicago, IL, USA, Nov. 2019.

[C5] Yuan, F., and **Wade, E.**, *A Dynamics–Based Approach to Quantifying Post-Stroke Upper Extremity Impairment using Wrist–Worn Wearable Sensors*, American Society of Neurorehabilitation, Chicago, IL, USA, Nov. 2019.

[C6] Naghavi, N., and **Wade, E.**, *Frequency domain measures of motor symptoms in Parkinson's disease.* In proceedings, 2018 Society for Neuroscience Conference, San Diego, CA, USA, Oct. 2018.

[C7] Miller, A. Duff, S., Quinn, L., Bishop, L., Youdan, G., Ruthrauff, H., and **Wade, E.** *Quantitative Assessment of Interlimb Coordination in Persons with Hemiparesis*, Progress in Clinical Motor Control I: Neurorehabilitation, Pennsylvania, PA, Jul. 2018.

[C8] Miller, A., Duff, S., Quinn, L., Bishop, L., Youdan, G., Ruthrauff, H., and **Wade, E.**, *Development of Sensor–Based Measures of Upper Extremity Interlimb Coordination*, In proceedings, 40^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI, USA, Jul. 2018.

[C9] Hauser, N. and **Wade, E.**, *Detecting Reach to Grasp Activities Using Motion and Muscle Activation Data*, In proceedings, 40^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI, USA, Jul. 2018.

[C10] Nelson, Z. and **Wade, E.**, *Relative Efficacy of Sensor Modalities for Estimating Post–Stroke Motor Impairment*, In proceedings, 40^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI, USA, Jul. 2018.

[C11] Naghavi, N. and **Wade, E.**, *Design of a Paradigm to Elicit Gait–Related Symptoms of Parkinson's Disease: A Case Study,*, In proceedings, 40^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI, USA, Jul. 2018.

[C12] Nelson, Z. and **Wade, E.**, *Frequency Domain Analysis of Fugl-Meyer Assessment Data in Individuals Post Stroke*, In proceedings, 2017 American Society for Neurorehabilitation, Baltimore, MD, Nov. 2017.

[C13] Miller, A. and **Wade, E.**, *Sensitivity of Inertial Sensors to Motor Compensation during a Goal Directed Reaching Task*, In proceedings, 39^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Jeju Island, Korea, Jul. 2017.

[C14] **Wade, E.**, Hall, L., and Fairbrother, J., *The Effect of Attentional Focus Training on Ladder Stability*, In proceedings, 2017 North American Society for the Psychology of Sport and Physical Activity Conference, San Diego, CA, Jun. 2017.

[C15] McCarthy Maeder, J., Reilly, K., **Wade, E.**, and Keith, R., *Impact of Social Robots During At–Home Practice of Speech Sounds With Children With Phonological Impairment*, In proceedings, 2016 American Speech–Language–Hearing Association, Philadelphia, PA, Nov. 2016.

[C16] Hemmati, S. and **Wade, E.**, *Detecting postural transitions: A robust wavelet–based approach*, 38^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Orlando, FL, 2016.

[C17] Chaeibakhsh, S. and **Wade, E.**, *Upper extremity post-stroke motion quality estimation with decision trees and bagging forests*, 38^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Orlando, FL, 2016.

[C18] Hemmati, S. and **Wade, E.**, *Optimally Selected Features Detect and Predict Freezing of Gait in Parkinson's Disease*, Biomedical Engineering Society (BMES), Minneapolis, MN, 2016.

[C19] Duff, S., Billmers, C., Brindle, S., Graver, S., Kelly, M., **Wade, E.**, *Accelerometry to Quantify Daily Upper Extremity Activity in Individuals with Hemiparesis Within 9 Months Post-Stroke*, American Physical Therapy Association Combined Sections Meeting (CSM), 2016.

[C20] Totty, M., **Wade, E.**, *Forearm EMG Activation Classifies Activities of Daily Living*, Biomedical Engineering Society (BMES), Tampa, FL, 2015.

[C21] **Wade, E.**, Lin, P., Hemmati, S., Sigward, S., *Predicting Daily Gait Behaviors after Anterior Cruciate Ligament Surgery: A Case Study*, 37^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Milan, Italy, 2015.

[C22] Garrison, B., **Wade, E.**, *Relative Accuracy of Time and Frequency Domain Features to Quantify Upper Extremity Coordination*, 37^{th} Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Milan, Italy, 2015.

[C23] Chaeibakhsh, S., Fairbrother, J., **Wade, E.**, *Methodology for Prospective Evaluation of Ladder Safety Protocols using Automated Force and Inertial Sensing*, International Conference on Applied Human Factors and Ergonomics (AHFE), Las Vegas, NV, USA, 2016.

[C24] Swift–Spong, K., Short, E., **Wade, E.**, Mataric, M., *Effects of Comparative Feedback from a Socially Assistive Robot on Self–Efficacy in Post-Stroke Rehabilitation*, 14^{th} IEEE/RAS–EMBS International Conference on Rehabilitation Robotics (ICORR), Singapore, 2015.

[C25] Chen, J., **Wade, E.** *Spectral Analyses as a Measure of Limb Coordination.* In proceedings, 2014 Biomedical Engineering Society (BMES), San Antonio, TX, Oct. 2014.

[C26] **Wade, E.**, Zeisler, C., Templeman, C., Chen, J. H. *Evidence of motor skill specialization in wrist motion of skilled clinicians.* In proceedings, 2013 Society for Neuroscience Conference, San Diego, CA, Nov. 2013.

[C27] Chen, J. H., **Wade, E.**, Zeisler, C., Ghanimanti, S., Wei, J. Z., Templeman, M. D. *Wrist Accelerometer Analysis of Competent versus Expert Laparoscopic Surgeons.* In proceedings, 2013 American Association of Gynecologic Laparoscopists, Washington, DC, Nov. 2013.

[C28] **Wade, E.**, Fan, T. W. *Kinematic Measures of Upper–Extremity Performance in the Home Setting for an Individual Post–Stroke: A Case Report.* In proceedings, 2013 IEEE EMBS Neural Engineering Conference, San Diego, CA, Nov. 2013.

[C29] **Wade, E.**, Proffitt, R., Kim, B., Lange, B., Requejo, P., Chen, Y. A., Chung, Y. C., Winstein, C. J. *Do Older Adults Plan and Adjust Reaching Movements Similarly for Real and Virtual Targets?.* In proceedings, 2013 Gerontological Society of America Conference, New Orleans, LA, Nov. 2013.

[C30] **Wade, E.**, Chen, S., and Winstein, C. J. *Kinematic performance of the paretic and non-paretic limbs after stroke during a goal-directed reaching task.* In proceedings, 2012 Society for Neuroscience Conference, New Orleans, LA, Oct. 2012.

[C31] **Wade, E.**, Proffitt, P., Requejo, P., Mulroy, S., and Winstein, C. J., *Visuomotor Reaching Behavior to Virtual and Real Targets Depends on Postural Requirements in Healthy Elders.* In proceedings, 2012 American Congress of Rehabilitation Medicine Conference, Vancouver, BC, Oct. 2012.

[C32] **Wade, E.**, Parnandi, A., and Matarić, M. J. *Using Socially Assistive Robotics to Augment Motor Task Performance in Individuals Post–Stroke.* In IEEE/RSJ International Conference on Intelligent Robots and Systems, San Francisco, California, Sept. 2011.

[C33] **Wade, E.**, Dye, J., Mead, R., and Matarić, M. J. *Assessing the Quality and Quantity of Social Interaction in a Socially Assistive Robot–Guided Therapeutic Setting.* In 12th IEEE International Conference on Rehabilitation Robotics, Zurich, Switzerland, Jun. 2011.

[C34] **Wade, E.**, Chen, S., and Winstein, C. J. *Determination of Nominal Task Difficulty of an Upper Extremity Motor Task Puzzle for Individuals Post–Stroke*, In proceedings, 2011 North American Society for the Psychology of Sport and Physical Activity Conference, Burlington, Vermont, Jun. 2011.

[C35] Charalambous, C., Gerger, M., Cesar, G., **Wade, E.**, Winstein, C. J. *Systematic Investigation of Anticipatory Planning in Goal–Directed Stepping.* In proceedings, 2011 North American Society for the Psychology of Sport and Physical Activity, Burlington, Vermont, Jun. 2011.

[C36] **Wade, E.**, Chen, S., and Winstein, C. J. *Effectiveness of Accelerometers for Evaluating Upper Limb Involvement During Gait.* In proceedings, 2^{nd} International Conference on Ambulatory Monitoring of Physical Activity and Movement, Glasgow, Scotland, May 2011.

[C37] Charalambous, C., Lai, Y. H., **Wade, E.**, and Winstein, C. J. *What factors are prioritized for planning actions that require goal–directed positioning?*, Proceedings of Society for Neuroscience, San Diego, California, Nov. 2010.

[C38] Mead, R., **Wade, E.**, Johnson, P., St. Clair, A, Chen, S., and Matarić, M. J. *An Architecture for Rehabilitation Task Practice in Socially Assistive Human–Robot Interaction* In 19th IEEE International Symposium in Robot and Human Interactive Communication, Viareggio, Italy, Sept. 2010.

[C39] **Wade, E.**, Parnandi, A., and Matarić, M. J. *Automated Administration of the Wolf Motor Function Test for Post-Stroke Assessment.* In ICST 4^{th} International ICST Conference on Pervasive Computing Technologies for Healthcare, Munich, Germany, Mar. 2010.

[C40] Parnandi, A., **Wade, E.**, and Matarić, M. J. *Motor Function Assessment Using Wearable Inertial Sensor.* Proceedings of the 32^{nd} Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Buenos Aires, Argentina, Aug. 2010.

[C41] **Wade, E.** and Matarić, M. J. *Design and Testing of Lightweight Inexpensive Motion–Capture Devices with Application to Clinical Gait Analysis.* In Proceedings of the International Conference on Pervasive Computing, London, England, Aug. 2009, pp.1–7.

[C42] Tapus, A., **Wade, E.**, and Matarić, M. J. *Using a Socially Assistive Robot in Gait Recovery and Training for Individuals with Cognitive Impairments.* In AAAI Fall Symposium AI in Eldercare: New Solutions to Old Problems, Arlington, Virginia, Nov. 2008.

[C43] **Wade, E.**, and Asada, H. H., *DC Behavior of Conductive Fabric Networks with Application to Wearable Sensor Nodes, Wearable and Implantable Body Sensor Networks*, International Workshop on Body Sensor Networks, Boston, Massachusetts, Apr. 2006, pp.27–30.

[C44] **Wade, E.**, and Asada, H. H., *Cable–Free Body Area Network using Conductive Fabric Sheets for Advanced Human–Robot Interaction*, Proceedings of the 27^{th} Annual International Conference of the Engineering in Medicine and Biology Society, Shanghai, China, Sept. 2005, pp.3530–3533.

[C45] **Wade, E.**, and Asada, H. H., *Electrostatic Analysis and Design of a Cable-Free Body Area Network of Sensor Nodes Using 2D Communication over Conductive Fabric Sheets*, In IEEE/RSJ International Conference on Intelligent Robots and Systems, Edmonton, Alberta, Aug. 2005, pp.3642–3647.

[C46] **Wade, E.**, and Asada, H. H., *Cable–free wearable systems using conductive fabrics transmitting signals and power*, Smart Structures and Materials: Smart Sensor Technology and Measurement Systems, Proceedings SPIE Vol. 5758, San Diego, California, 2005, pp.285–295.

[C47] **Wade, E.**, and Asada, H. H., *DC powerline communication network for a wearable health monitoring system*, International Symposium on Power Line Communications and Its Applications, Vancouver, Canada, Apr. 2005, pp.172–175.

[C48] **Wade, E.**, and Asada, H. H., *Cable–free wearable sensor system using a DC powerline body network in a conductive fabric vest*, Proceedings of the 26^{th} Annual International Conference of the Engineering in Medicine and Biology Society, Volume 2, San Francisco, California, Sept. 2004, pp.5376–5379.

[C49] **Wade, E.**, and Asada, H. H., *Wearable DC powerline communication network using conductive fabrics*, IEEE International Conference on Robotics and Automation, Volume 4, New Orleans, Louisiana, Apr. 2004, pp.4085–4090.

[C50] **Wade, E.**, and Asada, H. H., *Flexible material handling system using smart–carriers and powerline communication*, IEEE International Conference on Robotics and Automation, Volume 2, Taipei, Taiwan, Sept. 2003, pp.1711–1716.

[C51] **Wade, E.**, and Asada, H. H., *Reduced cable smart motors communicating over the DC power bus–line for high degree of freedom systems*, In IEEE/RSJ International Conference on Intelligent Robots and Systems, Volume 2, Las Vegas, Nevada, Oct. 2003, pp.1987–1991.

[C52] **Wade, E.**, and Asada, H. H., *One–wire smart motors communicating over the DC power bus–line with application to endless rotary joints*, IEEE International Conference on Robotics and Automation, Volume 3, Washington, D.C., May 2002, pp.2369–2374.

[C53] Liu, C.H., **Wade, E.**, and Asada, H. H., *Reduced–cable smart motors using DC power line communication* IEEE International Conference on Robotics and Automation, Volume 4, Seoul, South Korea, 2001, pp.3831–3838.

ACADEMIC HONORS & AWARDS

Tickle College of Engineering 2018 Teaching Fellow, University of Tennessee, 2018.

Thomas Stewart McCorkle Family Endowed Faculty Award, University of Tennessee, 2017.

Training in Rehabilitation Efficacy and Effectiveness Trials (TREET) T32 Training Grant Recipient, University of Southern California, 2011.

USC Stevens Center / IDEAS Empowered Grant, University of Southern California, 2010.

NIH U01 Supplement Award, National Institute of Neurological Disorders and Stroke, NIH, 2010.

Best Paper Award Finalist, International Symposium on Robot and Human Interactive Communication, IEEE, 2010.

Best Paper Award Finalist, International Conference on Robotics and Automation, IEEE, 2003.

Leventhal Fellowship Recipient, Massachusetts Institute of Technology, 2002.

MIT Presidential Fellowship Recipient, Massachusetts Institute of Technology, 2000.

Tau Beta Pi Member, Massachusetts Institute of Technology, 1999–2000.

Pi Tau Sigma Member, Massachusetts Institute of Technology, 1998–2000.

Silent Hoist & Crane Award for Mechanical Engineers, Massachusetts Institute of Technology, 1998.

INVITED TALKS

[T1] *Technologies for Motor–Neurorehabilitation*, 2017 TEDxUTK Event, Knoxville, TN, Feb. 11, 2017.

[T2] *Noninvasive Technology and Motor–Neuro Rehabilitation*, University of Tennessee Graduate School of Medicine Seminar, Knoxville, TN, Nov. 2017.

[T3] *Novel Technologies for Closing the Loop between the Clinic and the Home*, 2013 International Conference on Collaboration Technologies and Systems, San Diego, CA, May 23, 2013.

[T4] *Robots for Ambient Living: Cool, Practical, or Both?*, The Los Angeles/Orange County Chapter of the Association of Rehabilitation Nurses Workshop, Rancho Los Amigos National Rehabilitation Hospital, Downey, CA, Mar. 19, 2011.

[T5] *VR and Robotics for Stroke Rehabilitation: Where Do We Go From Here?*, USC Division of Biokinesiology and Physical Therapy Seminar Series, University of Southern California, Los Angeles, CA, Oct. 28, 2010.

[T6] *Imperceptible Wearable Sensing for Continuous Monitoring: Conductive Textiles*, 3^{rd} IEEE–EMBS International Summer School and Symposium on Medical Devices and Biosensors, Cambridge, MA, Sept. 5–6, 2006.

[T7] *Wearable Monitoring Applications*, Office of Engineering and Technology, Federal Communications Commission, Washington, D.C., Feb. 9, 2006.

SERVICE

Reviewing: Federal Grants and Funding

National Institutes of Health (2015–present)

National Science Foundation (2016–present)

Oak Ridge Associated Universities (2014, 2015, 2016)

Canada Foundation for Innovation (2014)

Technical Program Committees

ACM/IEEE International Conference on Human-Robot Interaction (2020)

IEEE Consumer Communications and Networking Conference (2010 to present)

IEEE Pervasive Computing Technologies for Healthcare (2010 to present)

INSTICC International Conference on Health Informatics (2010 to present)

INSTICC International Conference on Informatics in Control (2009 to present)

INSTICC International Conference on Bio–inspired Systems and Signal Processing (2010 to present)

International Workshop on Intelligent Environments Supporting Healthcare and Well-being (2010 to present)

Reviewing: Journal Papers

IEEE Transactions on Robotics

IEEE Transactions on Information Technology in Biomedicine

Journal of Experimental and Theoretical Artificial Intelligence

International Journal of Advanced Robotic Systems

Neurorehabilitation and Neural Repair

Gerontology

MDPI Sensors Journal

Reviewing: Conference Papers

IEEE Engineering in Medicine and Biology

IEEE International Symposium on Robot and Human Interactive Communication

IEEE Pervasive Computing Technologies for Healthcare

IEEE International Conference on Robotics and Automation

IEEE International Conference on Biomedical Robotics and Biomechatronics

Professional Affiliations & Memberships

Institute of Electrical and Electronics Engineers

American Society of Mechanical Engineers

Society for Neuroscience

American Society of Neurorehabilitation

American Congress of Rehabilitation Medicine

North American Society for the Psychology of Sport and Physical Activity

PATENTS

Melina Agosto, Teodoro Arvio, Sean Bradshaw, Scott Hiroshige, Nicole Thomas, Eric Wade, U.S. Patent 5915869 – "Ergonomic Cleaning Apparatus with Multiple Surfaces," Issued Jun. 29, 1999.