

MANUEL ENRIQUE HERNANDEZ

CURRICULUM VITAE

Last updated January 2015

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EDUCATION

Ph.D., Biomedical Engineering, University of Michigan, Ann Arbor, 2012

Dissertation: Biomechanics of leaning and downward reaching tasks in young and older women

M.S., Biomedical Engineering (Biomechanics Concentration), University of Michigan, Ann Arbor, 2005

B.S., Mechanical Engineering, Cornell University, 2003

ACADEMIC APPOINTMENTS

University of Illinois at Urbana-Champaign, Urbana-Champaign, IL *2014-Present*
Assistant Professor, Department of Kinesiology and Community Health
Affiliate Faculty, Beckman Institute for Advanced Science and Technology
Affiliate Faculty, Center on Health, Aging and Disability
Affiliate Faculty, Neuroscience Program

University of California, San Diego, La Jolla, CA *2012-2014*
Postdoctoral Scholar, Institute for Neural Computation

RESEARCH INTERESTS

Investigation of risk factors for injury or disability during the performance of goal-directed movements through the use of experimental and theoretical models • Exploration of speed-accuracy tradeoffs in the control of whole body movements • Understanding the behavioral and neural mechanisms underlying postural dysfunction in older adults with and without Parkinson's disease • Non-linear dynamical analysis of short and noisy time series data

TEACHING INTERESTS

Biomechanics of human movement • Neuromechanics • Interdisciplinary group projects focused on critical thinking in problem identification and involving open-ended problems

PEER-REVIEWED JOURNAL PUBLICATIONS

1. Lainscsek C, **Hernandez ME**, Poizner H, Sejnowski T. Delay Differential Analysis of Electroencephalographic Data. *Neural Computation* 2014; doi:10.1162/NECO_a_00656.
2. Lainscsek C, **Hernandez ME**, Weyhenmeyer J, Sejnowski T, Poizner H. Non-linear dynamical analysis of EEG time series distinguishes patients with Parkinson's disease from healthy individuals. *Frontiers in Neurology* 2013; doi:10.3389/fneur.2013.00200.
3. Lainscsek C, Weyhenmeyer J, **Hernandez ME**, Poizner H, Sejnowski T. Non-linear dynamical classification of short time series of the Rössler system in high noise regimes. *Frontiers in Neurology* 2013; doi:10.3389/fneur.2013.00182.
4. Lukos JR, Snider J, **Hernandez ME**, Tunik E, Hillyard S, Poizner H. Parkinson's disease patients show impaired corrective response control and eye-hand coupling when reaching to virtual objects. *Neuroscience* 2013; doi:10.1016/j.neuroscience.2013.09.026.
5. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Age-related differences in maintenance of balance during forward reach to the floor. *The Journals of Gerontology: Biological Sciences and Medical Sciences* 2013; 68(8):960-967.
6. **Hernandez ME**, Ashton-Miller JA, Alexander NB. The effect of age, movement direction, and target size on the maximum speed of targeted COP movements in healthy women. *Human Movement Science* 2012; 31:1213-1223.
7. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Age-related changes in speed and accuracy during rapid targeted center of pressure movements near the posterior limit of the base of support. *Clinical Biomechanics* 2012; 27(9):910-916.
8. **Hernandez ME**, Goldberg A, Alexander NB. Decreased muscle strength relates to self-reported stooping, crouching, or kneeling difficulty in older adults. *Physical Therapy* 2010; 90:67-74.
9. **Hernandez ME**, Murphy SL, Alexander NB. Characteristics of older adults with self-reported stooping, crouching, or kneeling difficulty. *The Journals of Gerontology: Biological Sciences and Medical Sciences* 2008; 63A(7):70-74.
10. Goldberg A, **Hernandez ME**, Alexander NB. Trunk repositioning errors are increased in balance-impaired older adults. *The Journals of Gerontology: Biological Sciences and Medical Sciences* 2005; 60A(10):1310-1314.

CONFERENCE PROCEEDINGS

11. Weyhenmeyer J, **Hernandez ME**, Lainscsek C, Sejnowski T, Poizner H. Muscle Artifacts in Single Trial EEG data Distinguish Patients with Parkinson's Disease from Healthy Individuals. *Engineering in Medicine and Biology Society (EMBC), Proceedings of the 2014 36th Annual International Conference of the IEEE*; doi:10.1109/EMBC.2014.6944326.

12. Lainscsek C, **Hernandez ME**, Poizner H, Sejnowski T. Multivariate spectral analysis of electroencephalography data. *Neural Engineering (NER), Proceedings of the 2013 6th International IEEE/EMBS Conference on*; doi:10.1109/NER.2013.6696142.
13. **Hernandez ME**, Stevenson C, Snider J, Poizner H. Center of pressure velocity autocorrelation as a new measure of postural control during quiet stance. *Neural Engineering (NER), Proceedings of the 2013 6th International IEEE/EMBS Conference on*; doi:10.1109/NER.2013.6696172.
14. **Hernandez ME**, Xiang X, Park YE, Goenawan I, Yawson F, Lowe E. Implementation of an Integrated Product Development Competition in a Rural Dominican Community: Lessons Learned. *Proceedings of the 118th Annual Meeting of the American Society for Engineering Education*, 2011, AC 2011-1102.

PUBLICATIONS IN REVIEW

15. **Hernandez ME**, Snider J, Stevenson C, Cauwenberghs G, Poizner H. A new method for evaluating postural control stochastic dynamics. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*; (In review).

RESEARCH SUPPORT

University of Illinois Office of the Vice Chancellor for Research Equipment Funding

Principal Investigator, "Equitest balance assessment system for assessment of fall risk in aging and disabled populations"

Amount: \$128,000 Total Costs

Percent effort: no support

National Institutes of Health NRSA Individual Pre-doctoral Fellowship, F31 AG024689

Principal Investigator, "Training in trunk control biomechanics in older adults"

2005-2010

Alexander, NB, Ashton-Miller, JA (co-mentors)

Amount: \$207,665 Total Costs

Percent effort: 100%

HONORS & AWARDS

University of Michigan Rackham Conference Travel Grant (2009-2011)

National Institute of Health Individual Pre-doctoral Research Fellowship (2005-2010)

Engineering Graduate Symposium Oral Presentation 1st Place Winner (2008)

Epeians – Engineering Leadership Honor Society (2008)

Distinguished Leadership Award (2007)

Student Legacy Award Honorable Mention (2007)

Ginsberg Center Award for Community Service & Social Action's Outstanding Community Impact Award (2006)

NSF Graduate Research Fellowship Program Honorable Mention (2004)

College of Engineering MLK Spirit Award Recipient (2004)
GEM M.S. Engineering Fellowship (2004)
Biomedical Engineering Departmental Fellowship (2003)
Pi Tau Sigma - Mechanical Engineering Honor Society (2003)
Eaton Minority Engineering Scholar (2000-2002)
Ford Motor Company Scholarship Recipient (1999-2003)
Robert C. Byrd Scholarship Recipient (1999-2003)

TEACHING EXPERIENCE

University of Illinois at Urbana-Champaign, Champaign, IL *Spring 2015*
Instructor, KIN 494: Special Topics: Neuromechanics.

University of Illinois at Urbana-Champaign, Champaign, IL *Fall 2014*
Instructor, KIN 355: Biomechanics of Human Movement. Enrollment: 99 (2014)

University of Illinois at Urbana-Champaign, Champaign, IL *2014*
Guest lecture, ME/BIOE 481: Whole Body Musculoskeletal Biomechanics Class
“Biomechanics of leaning and reaching movements”

Self-employed, San Diego, CA *2010-2012*
Tutor, undergraduate engineering coursework
Tutored undergraduate engineering student in statics, electrical circuits, electronics, applied mathematics for engineers and scientists, and physics.

University of Michigan, Ann Arbor, MI *2007*
Debrief Facilitator, Global Intercultural Experience for Undergraduates Program
Facilitated small group discussion on cultural misunderstandings and identity

University of Michigan, Ann Arbor, MI *2004-2006*
Team facilitator, ENGR 490: Engineering for Community Class
Defined objectives and benchmarks for pilot course in collaboration with faculty, staff, and students. Facilitated small project teams with problem identification, brainstorming, and project implementation. Developed lesson plans and prepared materials for single-class sessions.

University of Michigan, Ann Arbor, MI *2005*
Guest lecture, EHS 570: Water Quality Management Practices Class
“Household Water Purification in Rural Dominican Republic”

PROFESSIONAL DEVELOPMENT

University of Illinois at Urbana-Champaign, Champaign, IL *2014*
Participant, Center for Innovation in Teaching & Learning, Junior Faculty Seminar Series

Learned about the use of informal early feedback, writing effective i>clicker questions, active learning, teaching philosophy statement preparation, and improving testing and grading strategies.

University of California, San Diego, La Jolla, CA *2014*
Participant, Center for Teaching Development Teaching and Learning Weekly Workshops
Learned about learning outcomes, alternatives to lecture, peer instruction, and assessments that support learning.

Institute on Teaching & Mentoring, Tampa, FL *2010*
Participant, 17th Annual Compact for Faculty Diversity
Sharpened strategies to enhance the postdoctoral experience and navigating the first few years of a tenure-track academic position, so as to be better prepared for teaching, mentoring, and research as a member of the professoriate.

Stanford University, Palo Alto, CA *2009-2010*
Participant, OpenSim Developers Jamboree
Attended workshops designed to enhance my skills with OpenSim, focused on the OpenSim application programming interface (API) and integration of OpenSim models within MATLAB, conceptual overview of OpenSim, and generation of biomechanical models.

Stanford University, Palo Alto, CA *2008*
Participant, SimTK 1.5 Workshop
Attended workshop that provided the framework for mathematical modeling using the open-source toolkit, SimTK.

University of Michigan, Ann Arbor, MI *2007*
Participant, Preparing Future Faculty Conference
Learned about the structure of higher education institutions and how to effectively start, maintain, and mentor in a research laboratory.

University of Michigan, Ann Arbor, MI *2007*
Student, ENGIN 580: Teaching Engineering
Participated in academic course to better prepare for an academic career and to sharpen knowledge on learning theories and teaching issues. Prepared syllabus, brief lecture, design project, and exam for an undergraduate biomechanics course.

University of Michigan, Ann Arbor, MI *2004*
Participant, Training for Multicultural Classroom Facilitation
Participated in training course emphasizing teaching strategies to establish an open and inviting classroom, by exploring issues in multicultural teaching, engaging students in critical thinking, and strategies that anticipate and respond to difficult discussions.

University of Michigan, Ann Arbor, MI *2004*
Participant, CRLT Seminar on College Teaching

Participated in selected Center for Research on Learning and Teaching (CRLT) seminars to develop teaching skills on fostering and evaluating learning using concept maps and lecturing for learning.

RESEARCH EXPERIENCE

POST-DOCTORAL:

University of Illinois at Urbana-Champaign, Urbana, IL *2014-Present*
Director, Mobility and Fall Prevention Research Laboratory, Department of Kinesiology and Community Health, College of Applied Health Sciences

University of California, San Diego, San Diego, CA *2012-2014*
Postdoctoral Scholar, Institute for Neural Computation, Poizner Lab
Assessed the effect of Parkinson's disease and dopaminergic therapy on motor adaptation to grasping tasks. Utilized delay differential equation models for classifying Parkinson's disease patients vs. healthy age-matched control subjects using brief resting state electroencephalographic data. Examined the role of deep brain stimulation of the subthalamic nucleus (STN DBS) in reaching to kinesthetically provided targets in patients with Parkinson's disease. Investigated the neural and behavioral mechanisms underlying postural dysfunction in Parkinson's disease.

PRE-DOCTORAL:

University of Michigan, Ann Arbor, Ann Arbor, MI *2003-2012*
Research Assistant, Mobility Research Center, Department of Biomedical Engineering
Designed novel biomechanical study of the effects of age on whole body movements utilizing force plate, motion-capture, isokinetic dynamometer, and EMG data. Developed custom MATLAB code for the simulation and analysis of rigid body dynamics.

University of California, Berkeley, Berkeley, CA *2002*
Research Assistant (SUPERB fellow), Department of Bioengineering
Investigated flow characteristics of water-sucrose solution in rectangular microchannels. Identified channel entry dynamics through digital capture techniques.

Cornell University, Ithaca, NY *2002-2003*
Independent Design Project, Department of Mechanical and Aerospace Engineering
Developed final design of fixture for use in quantitative comparisons of distal radius surgical plates. Fabricated custom-made components used in test fixture and coordinated purchase of necessary hardware.

Cornell University, Ithaca, NY *2000-2001*
Research Assistant, Department of Material Science and Engineering
Investigated properties of avian keratin in rachis and barb samples through x-ray diffraction. Analyzed crystal diffraction in MATLAB and developed test sequence on turkey rachis.

Cornell University, Ithaca, NY 1999-2000
Laboratory Assistant, Ecology and Evolutionary Biology Department
Launched a database for the inventory of supplies in Venezuelan Research Outpost. Conducted Chlorophyll Tests with fluorometers and calculated organic matter tabulations in excel.

University of Miami, Miami, FL 1998
Research Assistant, Department of Pediatric Cardiology, Jackson Memorial Hospital (JMH)
Initiated a study on the conditions of post-operative cardiac transplant pediatric patients in JMH. Researched the effect of immunosuppressants such as cyclosporin and tacrolimus on the heart.

MENTORING EXPERIENCE

University of Illinois at Urbana-Champaign, Urbana, IL 2014-Present
Graduate Students, Kinesiology and Community Health Doctoral Program
Gioella Chaparro: *The effects of dual-task walking under partial weight bearing conditions in individuals with Parkinson's disease* (2014-Present).

University of Illinois at Urbana-Champaign, Urbana, IL 2014-Present
Undergraduate Students, Bioengineering Bachelor of Science Program
Rachel Walker: *The effect of dual tasking on the postural control of older adults* (2014-Present).

University of Illinois at Urbana-Champaign, Urbana, IL 2014-Present
Undergraduate Students, Kinesiology and Community Health Bachelor of Science Program
William Stein: *The effects of dual-task walking under partial weight bearing conditions in older adults* (2014-Present).
Erin O'Donnell: *Biomechanical mechanisms underlying postural dysfunction in older adults* (2015-Present).

University of Illinois at Urbana-Champaign, Urbana, IL 2015-Present
Undergraduate Students, Speech and Hearing Science Bachelor of Science Program
Heather Lalla: *The effect of attention in the gait of older adults with Parkinson's disease* (2015-Present).

University of Illinois at Urbana-Champaign, Urbana, IL 2014-Present
James Scholar Project,
Mary Heaton: *Fall Risk in Older Amputee Population* (2014).

University of California, San Diego, CA 2013-2014
Poizner Lab
Cory Stevenson: *Behavioral and neural mechanisms underlying postural dysfunction in PD* (2013-2014).
Raj Panchal: *Behavioral and neural mechanisms underlying balance control* (2013).

University of Michigan, Ann Arbor, MI 2005-2008
Undergraduate Research Opportunity Program
Lindsay Dubbs: *Studies of mobility assessment and enhancement in older adults* (2005-2006).
Michael Black: *Lifting characteristics of older adults with self-reported difficulty* (2006-2007).
Pooja Desai: *Learning effects in distal postural control tasks* (2006-2008).
Victoria Washington: *Biomechanics of older adults with stooping, crouching, or kneeling difficulty* (2007-2008).

University of Michigan, Ann Arbor, MI 2006-2007
Mobility Research Center Research Assistant
Radhika Patel: *The role of postural and configuration control on downward reach and pick-up movements in older adults* (2006).
Adam Biddle: *Development of biomechanical data analysis methods in MATLAB* (2007).

INDUSTRY EXPERIENCE

Medtronic Corporation, Neurological Division, Minneapolis, MN 2003-2004
Summer Associate, Neurological Lead Development Group
Developed a column buckle test method as a means to characterize lead distal tip behavior. Validated statistical model used for tolerance analysis of neurological stimulator connections. Standardized test protocols for use in characterization and design verification testing of leads and extensions. Designed and tested interior surface modifications to an existing anchor for concept evaluation.

Eaton Corporation (Tech Center), Pittsburgh, PA 2001
EMESP intern, Molded Case Circuit Breaker (MCCB) Group
Developed comprehensive tolerance analysis tool for mechanism in EF breaker. Executed development testing on new product line and coordinated construction of samples.

Eaton Corporation (SEO), Beverly, MA 2000
EMESP intern, Mechanical Engineering group
Designed Excel models to determine pressure gradient across components of a SDS Gas Box Module (GBM). Drafted DCO release drawings in AutoCAD 2000 and utilized Pro-E to visualize fluid flow of a GBM.

ORGANIZATIONAL LEADERSHIP EXPERIENCE

Better Living Using Engineering Laboratory, University of Michigan, Ann Arbor, MI,
Vice-President (2003-2005), Co-President (2005-2007)

Engineers for a Sustainable World, Ithaca, NY, Central-East Regional Director of Chapter Relations (2004-2005)

Engineers without Frontiers, Cornell University Chapter, Ithaca, NY, Co-President, member of founding executive board (2002-2003)

Society of Hispanic Professional Engineers, Cornell University Chapter, Ithaca, NY,
Director of Communications (2000-2001), Director of Marketing and Career Development
(2001-2002)

Engineering Student Council, Cornell University Chapter, Ithaca, NY, Co-Chair of
Representatives (2001-2002)

ENGAGEMENT

**Temporal Dynamics of Learning Center (TDLC) Fellows Committee, University of
California, San Diego, CA,** Sensory Motor Network Representative (2012-2014)

Cornell Alumni Admissions Ambassador Network, Cornell University, Ithaca, NY,
Member (2009-Present)

Departmental Visit Committee, University of Michigan, Ann Arbor, MI, Co-chair (2008)

BME Graduate Orientation, University of Michigan, Ann Arbor, MI, Volunteer (2005,2007)

BME Graduate Student Academic Committee, University of Michigan, Ann Arbor, MI,
Member (2006-2007)

RECRUITMENT OF UNDERREPRESENTED MINORITIES, UNIVERSITY OF MICHIGAN

HENAAC Career Exposition and Awards Show, Career Fair and Graduate School Fair,
Anaheim, CA, October 5-7, 2006.

Cornell University, Information Session and Graduate School Fair, Ithaca, NY, September 27-
28, 2005.

Society of Hispanic Professional Engineers National Conference, Graduate Student Panel and
Career Fair, Dallas, TX, January 5-9, 2005.

PROFESSIONAL ENGAGEMENT

Reviewer for Physiotherapy Theory and Practice

Reviewer for Journal of the American Aging Association

Reviewer for IEEE Transactions on Biomedical Circuits and Systems

Reviewer for 3rd Annual International Conference on Biomedical Engineering and
Biotechnology, Beijing, China.

Reviewer for 2014 Annual Conference of the Gerontological Society of America, Washington,
DC, USA.

Reviewer for Transactions on Neural Systems & Rehabilitation Engineering

Reviewer for Clinical Interventions in Aging

Reviewer for BMC Musculoskeletal Disorders

Reviewer for BMC Geriatrics

Reviewer for Design in Engineering Education Division for 2013 Annual Conference of the American Society for Engineering Education, Atlanta, GA, USA.

Reviewer for Journal of Gerontology: Medical Sciences

Reviewer for Design in Engineering Education Division for 2011 Annual Conference of the American Society for Engineering Education, Vancouver, BC, Canada.

Co-chair of Aging session, 33rd Annual Meeting of the American Society of Biomechanics, State College, PA, August 28, 2009.

PROFESSIONAL MEMBERSHIPS

American Association for the Advancement of Science • American Society of Biomechanics • American Society for Engineering Education • IEEE Engineering in Medicine and Biology Society • Gerontological Society of America • Society for Neuroscience • Society for the Neural Control of Movement

CONFERENCE PRESENTATIONS

1. **Hernandez ME**, Snider J, Stevenson C, Cauwenberghs G, Poizner H. A novel tool for analyzing stochastic postural control dynamics. Proceedings of the 2015 Gait & Clinical Movement Analysis Society, Portland, OR, March 17-20, 2015 (Accepted).
2. **Hernandez ME**, Weyhenmeyer J, Lainscsek C, Sejnowski TJ, Poizner H. Delay differential analysis of EEG during reaching to grasp virtual objects. Proceedings of the 2014 Society for Neuroscience Annual Meeting, Washington, DC, November 17, 2014.
3. Weyhenmeyer J, **Hernandez ME**, Lainscsek C, Sejnowski TJ, Poizner H. Muscle Artifacts in Single Trial EEG data Distinguish Patients with Parkinson's Disease from Healthy Individuals. Proceedings of the 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Chicago, IL, August 28, 2014.
4. **Hernandez ME**, Stevenson C, Snider J, Poizner H. Human cortical theta during quiet stance encodes postural stability. Proceedings of the 2013 Society for Neuroscience Annual Meeting, San Diego, CA, November 13, 2013.
5. Lukos JR, Hillyard S, Kaestner E, **Hernandez ME**, Snider J, Tunik E, Halgren E, Poizner H. EEG abnormalities in patients with Parkinson's disease during online grasp adaptation. Proceedings of the 2013 Society for Neuroscience Annual Meeting, San Diego, CA, November 11, 2013.
6. Lainscsek C, **Hernandez ME**, Weyhenmeyer J, Sejnowski T, Poizner H. Non-linear dynamical analysis of EEG time series distinguishes patients with Parkinson's disease from healthy individuals. Proceedings of the 2013 Society for Neuroscience Annual Meeting, San Diego, CA, November 10, 2013.

7. Lainscsek C, Weyhenmeyer J, **Hernandez ME**, Poizner H, Sejnowski T. Non-linear dynamical classification of short time series of the Rössler system in high noise regimes. Proceedings of the 2013 Society for Neuroscience Annual Meeting, San Diego, CA, November 10, 2013.
8. **Hernandez ME**, Stevenson C, Snider J, Poizner H. Center of pressure velocity autocorrelation as a new measure of postural control during quiet stance. Proceedings of the 2013 International IEEE/EMBS Conference on Neural Engineering, San Diego, CA, November 7, 2013.
9. Lainscsek C, **Hernandez ME**, Poizner H, Sejnowski T. Multivariate spectral analysis of electroencephalography data. Proceedings of the 2013 International IEEE/EMBS Conference on Neural Engineering, San Diego, CA, November 7, 2013.
10. Lainscsek C, **Hernandez ME**, Weyhenmeyer J, Sejnowski T, Poizner H. Non-linear dynamical analysis of human EEG during reaching for and grasping virtual objects. 2013 Temporal Dynamics of Learning Center All Hands Meeting, University of California, San Diego, La Jolla, CA, February 8, 2013.
11. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Influence of Postural Control and Leg Strength on Downward Reaching Performance in Older Adults. Proceedings of the 65th Annual Meeting of the Gerontological Society of America, San Diego, CA, November 14, 2012.
12. **Hernandez ME**. The effect of age and movement direction on rapid and accuracy-constrained center of pressure movements in healthy women. Platform presentation, 9th Annual Meeting of the Society for Autonomous Neurodynamics, San Diego, CA, August 22, 2012.
13. **Hernandez ME**, Ashton-Miller JA, Alexander NB. The effect of age and movement direction on rapid and targeted center of pressure submovements while crouching. Proceedings of the 36th Annual Meeting of the American Society of Biomechanics, Gainesville, FL, August 16, 2012.
14. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Why do older women utilize slower volitional center of pressure movements when accuracy is constrained? The role of the primary submovement. Proceedings of the 35th Annual Meeting of the American Society of Biomechanics, Long Beach, CA, August 13, 2011.
15. **Hernandez ME**, Xiang X, Park YE, Goenawan I, Yawson F, Lowe E. Implementation of an Integrated Product Development Competition in a Rural Dominican Community: Lessons Learned. Proceedings of the 118th Annual Meeting of the American Society for Engineering Education, Vancouver, BC, Canada, June 28, 2011.
16. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Forward dynamic model of the momentum arrest phase of whole-body downward reaching movements: Effects of age and functional impairment. Proceedings of the 21st Annual Meeting of the Society for the Neural Control of Movement, San Juan, PR, April 27, 2011.
17. **Hernandez ME**, Ashton-Miller JA, Alexander NB. An experimental study of postural control during downward reach and pick-up movements: Effects of age and limiting the length of the

base of support. Proceedings of the 34th Annual Meeting of the American Society of Biomechanics, Providence, RI, August 19, 2010.

18. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Discrete, accuracy-constrained, center of pressure movements near the limits of the functional base of support: effects of age and movement direction. Proceedings of the 20th Annual Meeting of the Society for the Neural Control of Movement, Naples, FL, April 24, 2010.
19. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Losses of balance during downward reach and pick-up movements in older adults. Platform presentation, 62nd Annual Meeting of the Gerontological Society of America, Atlanta, GA, November 21, 2009.
20. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Control of submaximal center of pressure movements in healthy women: effects of age and movement type. Proceedings of the 33rd Annual Meeting of the American Society of Biomechanics, State College, PA, August 27, 2009.
21. **Hernandez ME**, Ashton-Miller JA, Alexander NB. An experimental study of postural control during downward reach and pick-up movements: effects of age and limiting the length of the base of support. Platform presentation, 3rd Annual University of Michigan College of Engineering Graduate Symposium, Ann Arbor, MI, November 7, 2008.
22. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Effect of age and target width on the speed-accuracy trade-off of center of pressure movements near the anterior margin of the base of support in standing. Proceedings of the North American Congress on Biomechanics, Ann Arbor, MI, August 8, 2008.
23. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Downward reach-pick-up strategies in older females with self-reported difficulty. Platform presentation, 60th Annual Meeting of the Gerontological Society of America, San Francisco, CA, November 20, 2007.
24. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Theoretical analysis of factors affecting dynamic stability during the momentum arrest phase of a downward reach and pick-up task: simulations with a forward model. Platform presentation, 2nd Annual University of Michigan College of Engineering Graduate Symposium, Ann Arbor, MI, November 2, 2007.
25. **Hernandez ME**, Ashton-Miller JA, Alexander NB. Changes in distal postural control accuracy near the limits of the base of support. Proceedings of the 30th Annual Meeting of the American Society of Biomechanics, Blacksburg, VA, September 8, 2006.
26. **Hernandez ME**, Murphy SL, Ashton-Miller JA, Alexander NB. Co-morbidities and physical performance measures affected by self-reported difficulty in downward reaching tasks. Proceedings of the Midwest Biomedical Engineering Conference, Ann Arbor, MI, April 24, 2006.

27. Goldberg A, **Hernandez ME**, Alexander NB. 2005. Distal leg strength predicts measures of trunk control and clinical balance in older adults. Poster presentation, 4th Annual Wayne State University Institute of Gerontology/University of Michigan Institute of Gerontology & Michigan Alzheimer's Disease Research Center Joint symposium and poster presentation, Detroit, MI, April 6, 2005.
28. Goldberg A, **Hernandez ME**, Alexander NB. Trunk repositioning errors are increased in balance-impaired functionally-independent older adults. Platform presentation, 57th Annual Meeting of the Gerontological Society of America in Washington, DC, Nov 19-23, 2004.
29. Goldberg A, **Hernandez ME**, Alexander NB. Relationships between trunk strength, trunk proprioceptive acuity, and clinical measures of balance in balance-impaired older adults. Featured session: Aging and its relationship to physical performance and chronic disease. Platform presentation, Annual Meeting of the American College of Sports Medicine, Indianapolis, IN, June 4, 2004.
30. Goldberg A, **Hernandez ME**, Alexander NB. Trunk repositioning accuracy in older adults. 3rd Annual Wayne State University Institute of Gerontology/University of Michigan Institute of Gerontology & Michigan Alzheimer's Disease Research Center Joint symposium and poster presentation, Detroit, MI, April 7, 2004.

INVITED SPEAKING ENGAGEMENTS

Hernandez ME. “Towards an Understanding of the Brain’s Role in Preventing Falls in Older Adults,” Invited Talk, Department of Kinesiology and Community Health, UIUC, Champaign, IL, November 18, 2013.

Hernandez ME, Mac Donald EF. “Sustainability in the Developed World,” Platform presentation, 3rd Annual Engineers for a Sustainable World Conference, Austin, TX, October 8, 2005.

Schultz W, **Hernandez ME.** “Engineering for Community,” Engineering Education Panel Discussion, 2nd Annual Engineers for a Sustainable World Conference, Palo Alto, CA, October 1, 2004.

Hernandez ME. “Starting an Engineers Without Frontiers Chapter,” Platform Presentation, 1st Annual Engineers Without Frontiers Conference, Ithaca, NY, September 20, 2003.

CAMPUS TALKS

“Towards an Understanding of the Neural Mechanisms Underlying Human Postural Control,” Chalk Talk, Institute for Neural Computation, May 29, 2014.

“UROP Scholars Graduate Panel,” Panel Discussion, Undergraduate Research Opportunity Program Engineering Peer Group, March 19, 2008.

“Energy Independence and Sustainability,” Panel Discussion, Tau Beta Pi Martin Luther King Lecture Series, January 24, 2008.

“Graduate School Panel,” Panel Discussion, Undergraduate Research Opportunity Program Engineering Peer Group, November 28, 2007.

Hernandez ME, Chang T. “Sustainable Development in Global Health,” Platform Presentation, Undergraduate Research Opportunity Program Research Seminar, December 5, 2006.

Hernandez ME, Clarke J. “Methods in Sustainability,” Platform Presentation, Undergraduate Research Opportunity Program Engineering Peer Group, October 4, 2006.

“Engineers Getting Involved,” Panel Discussion, Tau Beta Pi Martin Luther King Lecture Series, January 25, 2005.

MEDIA COVERAGE

Avers D, Hernandez ME, Mangione KK. “Why Do Some Older Adults Have Difficulty With Stooping, Crouching, or Kneeling?” *Physical Therapy discussion podcast*, February 16, 2010.
<http://ptjournal.apta.org/content/90/1/67/suppl/DC1>

“Decreased Muscle Strength Predicts Functional Impairments in Older Adults,” February 16, 2010.
<http://www.physorg.com/news184268963.html>
<http://www.prnewswire.com/news-releases/decreased-muscle-strength-predicts-functional-impairments-in-older-adults-84500367.html>

Nesbit J, “Annual awards honor service, social action,” *The University Record Online*, April 10, 2006.
http://www.ur.umich.edu/0506/Apr10_06/23.shtml

“BLUElab Wins 2005 Elaine Harden Award,” *2004-2005 Mechanical Engineering Annual Report*, p39, 2005.
<http://me.engin.umich.edu/news/pubs/ar/index.shtml>
Link “2004-05 Annual Report”

DiMeo F. “Thanks to CU project, L-VIS is in the library,” *Cornell Chronicle*, v35, n21, February 5, 2004.
<http://www.news.cornell.edu/Chronicle/04/2.5.04/L-VIS.html>

Berkowitz K. “Making a World of Difference,” *Cornell Engineering Magazine*, v8, n3, Fall 2002.
http://132.236.230.130/engrMagazine/magazine.cfm?issue=FALL2002&page_number=1§ion=feature2

LANGUAGES

Spanish fluency and French competency