Curriculum Vitae for M. Melissa Gross

Location:
School of Kinesiology
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Education

Year Earned	Degree Type	Institution	Program
1984	Ph.D.	University of California, Los Angeles	Kinesiology (Biomechanics)
1979	M.S.	University of California, Los Angeles	Kinesiology
1976	B.A.	University of Colorado, Boulder	Dance (with High Distinction)

Professional Experience

Year Served	Title and Institution
2019-24	Faculty Director, University of Michigan Women in Science and Engineering
2013-19	Director of Innovative Teaching and Learning, School of Kinesiology, University of Michigan
2006-10	Associate Dean for Research, School of Kinesiology, University of Michigan, Ann Arbor
2006-Present	Active Faculty Member, University of Michigan Depression Center, University of Michigan, Ann Arbor
2005-17	Associate Professor, School of Art & Design, University of Michigan, Ann Arbor (courtesy)

1999-Present	Associate Professor, Movement Science Dept., School of Kinesiology, Univ. of Michigan, Ann Arbor
1991-Present	Assistant Research Scientist, Institute of Gerontology, University of Michigan, Ann Arbor (courtesy)
2001-02	Co-Director, Rackham Summer Interdisciplinary Institute, University of Michigan, Ann Arbor
2000	Fellow, Rackham Summer Interdisciplinary Institute, University of Michigan, Ann Arbor
1998-01	Faculty, Center for Biomedical Engineering Research, University of Michigan, Ann Arbor
1993-01	Faculty, Center for Human Motor Research, Kinesiology, University of Michigan, Ann Arbor
1991-96	Faculty, Bioengineering Program, University of Michigan, Ann Arbor
1991-95	Research Health Scientist, Veterans Affairs Medical Center, Ann Arbor, Michigan
1991-99	Assistant Professor, Dept. of Movement Science, Div. of Kinesiology, Univ. of Michigan, Ann Arbor
1985-91	Research Health Scientist, Rehabilitation Res & Dev Ctr, VA Medical Center, Palo Alto, California
1985-91	Visiting Scholar, Design Division, Mechanical Engineering Dept., Stanford University, California
1985	Visiting Lecturer, Department of Kinesiology, University of California, Los Angeles
1984-85	Post-doctoral Researcher, Department of Kinesiology, University of California, Los Angeles
1980-84	Research Associate, Department of Kinesiology, University of California, Los Angeles
1978	Teaching Associate, Department of Kinesiology, University of California, Los Angeles
1977-81	Graduate Research Trainee, Bureau of Education for the Handicapped, University of California
1977-78	Teaching Assistant, Department of Kinesiology, University of California, Los Angeles

Honors and Awards

Year Earned	Honor and Award Name
2022	MS Global Learning Consortium 2022 Learning Impact Bronze Award for “Competency-Based Tracking for Interprofessional Education Leveraging Institutional Data”
2020-21	Kinesiology Teaching Excellence Award
2020	Michigan Center for IPE Award for Innovation and Excellence for “101 Taskforce”
2018-19	Kinesiology Teaching Excellence Award
2019	Midwest Interprofessional Practice, Education & Research Center Demonstration Model Award for “Foundations Experience Faculty Team”
2017	Midwest Interprofessional Practice, Education & Research Center Demonstration Model Award for “IPE Course Adaptor Toolkit”
2016	University of Michigan Provost’s Teaching Innovation Prize Finalist for “Scaling Up Engaged Learning Using Blended Modular Courses with Shared Learning Goals”
2015-16	Interprofessional Leadership Fellow, University of Michigan
2015-16	DEI Academic Innovation Fellow, University of Michigan
2014	Arthur F. Thurnau Professorship
2013-14	Kinesiology Teaching Excellence Award
2011	Fellow, American Society of Biomechanics
1998	Computerworld Smithsonian Award Program Laureate for “Motion Analysis”
1997	Kinesiology Nominee for University of Michigan Henry Russel Teaching Award

Predoctoral Fellowships

Year	Description
1982	Edith Hyde Scholarship, Department of Kinesiology, University of California, Los Angeles
1981	Alan S. Tetelman Scholarship, Failure Analysis Associates

1980-83	University Grant, Graduate Division, University of California, Los Angeles
1977-81	Bureau of Education for the Handicapped Graduate Research Fellowship

Funding

Grants

- Echo360 Active Learning Grant “Effects of Text-based and Image-based Activities on Student Learning”, M. Gross (PI), Total costs $10,000 (Direct costs $8,000; Indirect costs $2,000), 2013-14
- NSF Grant 0444301 “Perceived Facial Expressions of Emotion as Motivational Incentives”, M.M. Gross (PI), Total costs $84,756 (Direct costs $55,761; Indirect costs $28,995), 2007-10
- NIH Grant “Functional Status and the Menopausal Transition”, M.F. Sowers (PI), M.M. Gross (Co-I), Total direct costs $603,864; Indirect costs $157,00, 2000-05
- SATECH Corporation gift to Neuromuscular Biomechanics Lab (M.M. Gross, Director); $14,491, 1995-98
- State of Washington contract (CTED #96-220-014): "Fatigue and Playing Surfaces", B.J. Martin and M.M. Gross, Costs for M.M. Gross: Direct costs $19,853, Indirect costs $5,108, 1996-97
- KAF Industries "Evaluation of Hydrobics Devices" contract (with V. Katch), $3,000, 1995-95
- Veterans Affairs Rehabilitation Research and Development Merit Review Grant (#E642-R): "Effects of Muscle Strength on Balance During Movement in the Elderly", M.M. Gross and N.B. Alexander (Co-Principal Investigators), $462,600, 1992-95
- Veterans Affairs Rehabilitation Research and Development Merit Review Grant (#B554-R): "Surgery Simulation: Computer Models to Study Reconstructive Surgeries", M.G. Hoy, J. M. Rosen and F.E. Zajac (Co-Principal Investigators), $353,200, 1991-94

University of Michigan

- Whitaker Fund Grant, Center for Research on Teaching and Learning, “Kinesiology Curriculum Review: Movement Science and Applied Exercise Science Programs”, University of Michigan, $16,600 (faculty lead), 2025-27, submitted
- Arts + Curriculum Grant, “The Art of Anatomy AY2024-25 Course”, University of Michigan, $6,618 (faculty lead), 2024

- Arts + Curriculum Grant, “The Art of Anatomy”, University of Michigan, $19,611 (faculty lead), 2023
- IP-X Diamond Cube Grant, “Advancing IPE Efforts Using Data Visualization”, University of Michigan, $15,000, 2019-20 (faculty partner)
- Foundational Course Initiative, Center for Research on Teaching and Learning, University of Michigan, $30,000, 2019-22 for “Movesci 110 – Biological and Behavioral Bases of Human Movement”, (faculty team member)
- MCubed Grant, “Using Learning Analytics to Assess Interprofessional Competencies”, University of Michigan, $60,000, 2015-17 (faculty team lead)
- Digital Education and Innovation Academic Innovation Fund Grant, “Using Hybrid Modular Courses to Scale Up Engaged Learning in Kinesiology”, University of Michigan, $13,625, 2015-16 (faculty team lead)
- Transforming Learning for Third Century Quick Wins/Discovery Grant, “Using Hybrid Modular Courses to Scale Up Engaged Learning”, University of Michigan, $50,000, 2015-16 (faculty team lead)
- Transforming Learning for Third Century Quick Wins/Discovery Grant, “Virtual Dissection: Improving Student Learning with Anatomage Table”, University of Michigan, $50,000, 2015-16 (faculty team lead)
- Faculty Development Fund, Center for Research on Teaching and Learning, “Muscle Function as Thread: Stitching Together the Kinesiology Curriculum Using Shared Digital Tools”, University of Michigan, $6000, 2014-15 (faculty team lead)
- Teaching with Technology Institute Grant, Center for Research on Teaching and Learning, University of Michigan, $2500, 2009
- Spring/Summer Research Grant, Office of the Vice President for Research, University of Michigan, $4000, 2005-06
- “The Body in Motion: Motion Capture for the Arts and Sciences”, Whitaker Fund for the Improvement of Teaching, University of Michigan, M. Gross, $10,000; $2,405 School of Kinesiology; $2,405 School of Art and Design, 2005-06
- Elizabeth Caroline Crosby Fund award, NSF Advance, University of Michigan, M. Gross, $5,000, 2004-05
- "Embodying Emotion: Translating the Languages of Meaning and Movement", Project Extension – Rackham Interdisciplinary and Collaborative Grant, Rackham School of Graduate Studies, University of Michigan, M. Gross, Co-PI with D. Koditschek, $8,000, 2003-04

- "Embodying Emotion: Translating the Languages of Meaning and Movement", Rackham Interdisciplinary and Collaborative Grant, Rackham School of Graduate Studies, University of Michigan, M. Gross, Co-PI with D. Koditschek, $50,000, 2002-03
- University of Michigan Life Sciences Initiative for Undergraduate Education, funding for new course “Stradivarius as Biologist: Cultivating Bel Canto Through Sound & Vision”, $120,000, 2002-03
- "Role of a professional society in the careers of women scientists: 25 years of participation in the American Society of Biomechanics", Seed Grant Program, Institute for Research on Women and Gender, University of Michigan, M. Gross, PI, $9,162, 2001-02
- Office of the Vice-President for Research Discretionary Funds Grant “Statistical Analysis of Biomechanical Data”, $4200, School of Kinesiology cost sharing $600, 1995-96
- Office of Provost and Executive Vice-President for Academic Affairs, Career Development Fund for Women Faculty, Michigan Agenda for Women, $5000, 1995-96
- Spring/Summer Research Grant, Office of the Vice President for Research, University of Michigan, Support for Gu Kang, $4000, 2006
- University of Michigan Center for Research on Learning and Teaching Instructional Development Fund “Purchase of MathSoft for MVS 330”, $500, 1996-97
- University of Michigan Rackham Research Partnership Grant "Functional implications of Neandertal pelvic and hindlimb morphology", M.M. Gross and J.A. Miller, $14,214, 1994-95
- University of Michigan Undergraduate Research Opportunity Program: 2007-08 ($250), 2006-07 ($300), 2005-06 ($245), 2004-05 ($810), 2003-04 ($598), 2002-03 ($288), 2001-02 ($390), 1995-96 ($250), 1994-95 ($210)
- University of Michigan Center for Research on Teaching and Learning Faculty Development Fund “Computer Tools for Engaging Kinesiology Undergraduates in Research”, $5816; School of Kinesiology cost-share $6040, 1999-00
- University of Michigan GE Undergraduate Research Fellowship, Sponsor for T. Israel, $5000, 1993-94

School of Kinesiology

- School of Kinesiology-Academic Program Coordinator for Movement Science 230: 2006-07 ($3440), 2005-06 ($5282), 2004-05 ($730)
- School of Kinesiology-Office of Instructional Technology Partnership Project for Movement Science 330: 1997-98 ("Muscles in Action - Part 2", $3900; "Conversion of existing ADAM tutorials in MVS 330 to web-based format", $400; "Development of

web-based homework problems for MVS 330 using StudyWorks", $800; "Website maintenance for MVS 330", $500); 1996-97 ("Website for Biomechanics", $2000; "Digital Video", M.M. Gross and C.J. Worringham, $1000); 1995-96 ("Digital Video", M.M. Gross and C.J. Worringham, $5000; "Muscle Action in Movement", $5000)

- School of Kinesiology-Office of Instructional Technology Partnership Project "Interactive ADAM-based tutorials for MVS 110", $600, 1997-98
- School of Kinesiology, Associate Director for Research and Scholarly Activities Interdisciplinary Funds “Dynamics of Expressive Movement in Dance”, $3000, 1997-98
- School of Kinesiology, Associate Director for Research and Scholarly Activities Interdisciplinary Funds “Effects of Purposive Activity on Elbow Movement”, $1000, 1997-98
- School of Kinesiology-Office of Instructional Technology Partnership Project "Development of CHMR website", M. Gross, R. Angulo-Kinzler, S. Brown, $3640, 1997-98

Publications

Journal Articles

Phanudulkitti, C., Mattison, D., Bavireddy, V., Smith, L.J. and **Gross, M.M.** The impact of course design features, gender and academic level on student attitudes towards “Introduction to IPE” course: Mixed-methods analysis. International Journal of Health Professions, 11(1):28-37, 2024. https://doi.org/10.2478/ijhp-2024-0004

Gross, M.M., Gear, J.E. and Sepponen, W.M. Using represented bodies in Renaissance artworks to teach musculoskeletal and surface anatomy. Anatomical Sciences Education, 17(1):24-38, 2024. (epub 2023 Aug 12) http://doi.org/10.1002/ase.2326

Rulli, D., Bavireddy, V., Smith, L., **Gross, M.**, Mattison, D., Fitzgerald, M., Bishop, T., Trupiano, N. and Anderson, O.S. Socialisation into interprofessional teams: A mixed-methods study among early health professional learners who engaged in a teams and teamwork module. International Journal of Health Professions, 9(1): 164-173, 2022. https://doi.org/10.2478/ijhp-2022-0014

Gross, M.M., Marquardt, K., Hasson, R.E., Vesia, M., King, A.R., and Bodary, P.F. Designing for cross-cutting skill development and diversity, equity, & inclusion in a foundational kinesiology course. Kinesiology Review, 11(4), 343-352, 2022. https://doi.org/10.1123/kr.2022-0021.

Gross, M.M., Phanudulkitti, C., Bavireddy, V., Anderson, O., Daniels, T., Fitzgerald, M., Mattison, D., Nagappan, K., Patterson, V., Smith, L., Ursuy, P. and Farris, K. Changes in student

attitudes toward IPE after sequenced introductory learning activities. Health, Interprofessional Practice and Education, 4(3), eP2164, 2022. http://doi.org/10.7710/2641-1148.2164

Smith, L., Mattison, D., **Gross, M.**, Trupiano, N., Fitzgerald, M., Patterson, V., Ursuy, P., Farris, K., Najjar, G., and Anderson, O. A framework and recommendations to recruit and engage faculty facilitators for large-scale IPE events. Journal of Allied Health, 50(2):111-116, 2021. PMID: 34061930

Bodary, P.F. and **Gross, M.M.** Innovative teaching and learning strategies in kinesiology. Kinesiology Review, 7(4):321-327, 2018. https://doi.org/10.1123/kr.2018-0037

Kang, G.E., Mickey, B.J., Krembs, B.S., McInnis, M.G. and **Gross, M.M.** The effect of mood phases on balance control in bipolar disorder. Journal of Biomechanics 82:266-270, 2019. DOI 10.1016/j.jbiomech.2018.10.039

Kang, G.E., Mickey, B.J., McInnis, M.G., Krembs, B.S. and **Gross, M.M.** Mood state-specific characteristics in bipolar disorder revealed through biomechanical analysis: Quantitative measures of activity and energy variables during gait and sit-to-walk. Psychiatry Research 269:93-101, 2018. DOI 10.1016/j.psychres.2018.08.062

Gross, M.M., Wright, M.C., and Anderson, O.S. Effects of image-based and text-based active learning exercises on student examination performance in a musculoskeletal anatomy course. Anatomical Sciences Education, 10:444-455. doi:10.1002/ase.1684, 2017.

Kang, G.E. and **Gross, M.M.** The effect of emotion on movement smoothness during gait in healthy young adults. Journal of Biomechanics 49(16): 4022-4027, 2016. DOI 10.1016/j.biomech.2016.10.044

Kang, G.E. and **Gross, M.M.** Concurrent validation of magnetic and inertial measurement units in estimating upper body posture during gait. Measurement 82: 240-245, 2016. DOI 10.1016/j.measurement.2016.01.007

Kang, G.E and **Gross, M.M.** Emotional influences on sit-to-walk in healthy young adults. Human Movement Science 40: 341-351, 2015. DOI 10.1016/j.humov.2015.01.009

Crane, E.A. and **Gross, M.M.** Effort-Shape characteristics of emotion-related body movement. Journal of Nonverbal Behavior 37(2): 91-105, 2013. DOI 10.1007/s10919-013-0144-2

Gross, M.M., Crane, E.A. and Fredrickson, B.L. Effort-Shape and kinematic assessment of bodily expression of emotion during gait. Human Movement Science 31(1): 202-221, 2012.

Crane, E.A., **Gross, M.M.**, and Fredrickson, B.L. Feasibility of using a head-mounted camera to capture dynamic facial expressions during body movement. In D. England (Ed.), Whole Body

Interaction, Human–Computer Interaction Series, Vol. XV (pp. 151-162), London: Springer, 2011.

Gross, M.M., Crane, E.A. and Fredrickson, B.L. Methodology for assessing bodily expression of emotion. Journal of Nonverbal Behavior 34(4): 233-248, 2010.

Borer, K.T., Fogleman, K., **Gross, M.M.**, LaNew, J.M., and Dengel, D. Walking intensity for postmenopausal bone mineral preservation and accrual. Bone 41: 713-721, 2007.

Sowers, M.F., Jannausch, M.L., **Gross, M.M.**, Karvonen, C.A., Palmieri, R.M., Crutchfield, M. and Richards-McCullough, K. Performance-based physical functioning in African-American and Caucasian women at mid-life: Considering body composition, quadriceps strength, and knee osteoarthritis. American Journal of Epidemiology 163(10): 950-958, 2006.

Sowers, M.F., Crutchfield, M., Richards, K., Wilkin, M., Furniss, A., Jannausch, M. Zhang, D. and **Gross, M.M.** Sarcopenia is related to physical functioning and leg strength in mid-aged women. Journal of Gerontology: Medical Sciences 60A(4): 486-490, 2005.

Garcia, A.W., Langenthal, C.R., Angulo-Kinzler, R.M. and **Gross, M.M.** A comparison of accelerometers in school-age children for predicting energy expenditure and vertical ground reaction force. Measurement in Physical Education and Exercise Science, 8(3): 119-144, 2004.

Alexander, N.B., **Gross, M.M** , Medell, J.M., and Hofmeyer, MR. Effects of functional ability and training on chair-rise biomechanics in older adults. Journal of Gerontology: Medical Sciences, 56A:M538-M547, 2001.

Streepey, J.W., **Gross, M.M.** Martin, B.J., Sudarasan, S., and Schiller, C. Floor composition affects performance and muscle fatigue following a basketball task. Journal of Applied Biomechanics, 16:157-168, 2000.

Gross, M.M. Analysis of human movement using digital video. Journal of Educational Multimedia and Hypermedia, 7:375-395, 1998.

Gross, M.M., Stevenson, P.J., Charette, S.L., Pyka, G. and Marcus, R. Effect of muscle strength and movement speed on chair-rise biomechanics in young and healthy elderly women. Gait & Posture, 8:175-185, 1998.

Miller, J.A. and **Gross, M.M.** Locomotor advantages of Neandertal skeletal morphology at the knee and ankle. Journal of Biomechanics, 31:355-361, 1998.

Gross, M.M. Motion Analysis. Case Study #98440. Permanent Research Collection, Smithsonian Institution, Information Technology and Society Archive, National Museum of American History, 1998.

Alexander, N.B., Schultz, A.B., Ashton-Miller, J.A., **Gross, M.M.** and B. Gordon. Difficulty in rising from a chair: a question of insufficient strength? Muscle and Nerve, Suppl. 5: S56-S59, 1997.

Aragon, L.F. and **Gross, M.M.** Kinesiological factors in vertical jump performance. I. Among subjects. Journal of Applied Biomechanics, 13:24-44, 1996a.

Aragon, L.F. and **Gross, M.M.** Kinesiological factors in vertical jump performance. II. Within subjects. Journal of Applied Biomechanics, 13:45-65, 1996b.

Trotman, C-A., **Gross, M.M.**, and Moffatt, K.S. Reliability of a 3-dimensional method for measuring facial animation. Angle Orthodontics, 66:195-198, 1996.

Gross, M.M., Trotman, C-A., and Moffatt, K.S. A comparison of three-dimensional and two-dimensional analyses of facial motion. Angle Orthodontics, 66:189-194, 1996.

Koshland, G.F., Hoy, **M.G.**, Smith, J.L., and Zernicke, R.F. Coupled and uncoupled limb oscillations during paw-shake response. Experimental Brain Research, 83: 587-597, 1991.

Delp, S., Loan, P., Hoy, **M.**, Zajac, F., Topp, E., and Rosen, J. An interactive graphics-based model of the lower extremity to study orthopaedic surgical procedures. IEEE Transactions of Biomedical Engineering, 37:757-767, 1990.

Hoy, **M.G.**, Zajac, F.E. and Gordon, M.E. A musculoskeletal model of the human lower extremity: the effect of muscle, tendon, and moment arm on the moment-angle relationship of musculotendon actuators at the hip, knee, and ankle. Journal of Biomechanics, 23:157-169, 1990.

Hoy, **M.G.** and Zernicke, R.F. The role of intersegmental dynamics during rapid limb oscillations. Journal of Biomechanics, 19:867-877, 1986.

Hoy, **M.G.**, Zernicke, R.F. and Smith, J.L. Contrasting roles of inertial and muscular moments at knee and ankle during paw-shake response. Journal of Neurophysiology, 54:1282-1294, 1985.

Smith, J.L., Hoy, **M.G.**, Koshland, G.F., Phillips, D.M. and Zernicke, R.F. Intralimb coordination of the paw-shake response: a novel mixed synergy. Journal of Neurophysiology, 54:1271-1281, 1985.

Hoy, **M.G.** and Zernicke, R.F. Modulation of limb dynamics in the swing phase of locomotion. Journal of Biomechanics, 18:49-60, 1985.

Smith, J.L., Bradley, N.S., Carter, M.C., Giuliani, C.A., Hoy, **M.G.**, Koshland, G.F. and Zernicke, R.F. Intralimb synerigies of rhythmical movements in spinal cats: requirements for a central

pattern generator. In: Development and Plasticity of the Mammalian Spinal Cord. M.E. Goldberger and A. Gorio (Eds.), pp.347-362, 1985.

Zernicke, R.F., Hoy, **M.G.** and Whiting, W.C. Ground reaction forces and center of pressure patterns in the gait of children with amputation - a preliminary report. Archives of Physical Medicine and Rehabilitation, 66:736-741, 1985.

Hoy, **M.G.**, Whiting, W.C. and Zernicke, R.F. Stride kinematics and kinetics of child amputee gait. Archives of Physical Medicine and Rehabilitation, 63:74-82, 1982.

Smith, J.L., Smith, L.A., Zernicke, R.F. and Hoy, **M.G.** Locomotion in exercised and non-exercised cats cordotomized at two or twelve weeks. Experimental Neurology, 76:393-413, 1982.

Conference Proceedings

Kang, G.E., Mickey, B.J, McInnis, M.G, Krembs, B.S. and Gross, M.M. Gait kinematics are different between asymptomatic individuals with biopolar disorder and healthy controls. International Society of Biomechanics/American Society of Biomechanics Meeting, Calgary, Canada, Jul 31-Aug 4, 2019.

Gross, M.M. Lessons from the past: Learning anatomy in Renaissance Italy. American Society of Biomechanics Annual Meeting, Rochester, MN, Aug 8-11, 2018.

Kang, G.E., Mickey, B., Krembs, B., McInnis, M. and Gross, M. Gait performance in bipolar disorder: A 6-month pilot longitudinal study. American Society of Biomechanics Annual Meeting, Rochester, MN, Aug 8-11, 2018.

Gross, M., Mattison, D., Patel, M. and Xie, Y. Developing an IPE course adapter toolkit. Midwest Interprofessional Practice, Education and Research Center Conference, Grand Rapids, MI, Sep 21-22, 2017.

Kang, G.E., Mickey, B., Krembs, B., McInnis, M. and Gross, M. Joint power generation during gait across mood phases in bipolar disorder. American Society of Biomechanics Annual Meeting, Boulder, CO, Aug 8-11, 2017.

Kang, G.E., Mickey, B., Krembs, B., McInnis, M. and Gross, M. Kinematic analysis of sit-to-walk in bipolar disorder. American Society of Biomechanics Annual Meeting, Boulder, CO, Aug 8-11, 2017.

Samson, P., Czarnik, A. and Gross, M. Relationships between digital measures of student engagement and exam scores: Is the LMS enough? 2017 Learning Analytics and Knowledge Conference, Vancouver, BC, Mar 13-17, 2017.

Gross, M.M., Greenberg, A.K., Wright, M.C. and Anderson, O.S. Effects of image-based and text-based exercises on student learning. American Society of Biomechanics Annual Meeting, Raleigh, NC, Aug 2-5, 2016.

Kang, G.E., Mickey, B.J., Krembs, B.S., Harrington, G.J., McInnis, M.G. and Gross, M.M. Gait characteristics in bipolar disorder: a preliminary study. Gait & Clinical Movement Analysis Society Meeting, Memphis, TN, May 17-20, 2016.

Kang, G.E. and Gross, M.M. Quantitative assessment of movement smoothness during emotional gait. American Society of Biomechanics Annual Meeting, Columbus, OH, Aug 5-8, 2015.

Kang, G.E. and Gross, M.M. The effect of emotion on the center of mass movement during walking. 7th World Congress of Biomechanics, Boston, MA, Jul 6-11, 2014

Gross, M.M., Greenberg, A.K. and Wright, M.C. Effects of image-based and text-based activities on student learning outcomes. 4th International Conference on Learning Analytics and Knowledge, Indianapolis, IN, March 24-28, 2014.

Kang, G. and Gross, M. Assessment of body posture using inertial measurement units: a validation study. American Society of Biomechanics Annual Meeting, Omaha, NE, September 2013.

Gross, M. Undergraduate course case study: motion capture and animation for biomechanics. American Society of Biomechanics Annual Meeting, Omaha, NE, September 2013.

Kang, G. and Gross, M. Assessment of body posture using inertial measurement units: a validation study. 3rd International Conference on Ambulatory Monitoring of Physical Activity and Movement, Amherst, MA, June, 2013.

Kang, G. and Gross, M. Natural gait may not be neutral: it all depends on how you feel. American Society of Biomechanics Annual Meeting, Gainesville, FL, August 2012.

Kang, G. and Gross, M. Gait kinematics change when emotions are felt vs. portrayed. American Society of Biomechanics Annual Meeting, Los Angeles, CA, August 2011.

Gross, M. and D'Angelo, J. Limb kinematics predict emotion recognition with walking speed modifications in biomechanical animations. American Society of Biomechanics Annual Meeting, Providence, RI, August 2010.

Gross, M.M., Wei, L., D'Angelo, J., Bartoszewicz, A. and Jeong, I. Recognizing emotion in gait with virtual marker and video displays of the body. 11th International Symposium on the 3-D Analysis of Human Movement, San Francisco, CA, July 2010.

Wei L., Keen, B., Herzog, C., Crane, E. and Gross, M. Biomechanical animations communicate emotion during walking. American Society of Biomechanics, State College, PA, August 2009.

Crane E., Gross M., Methodological considerations for quantifying emotionally expressive movement style. Workshop on Whole Body Interaction. CHI 2009. Boston, MA, April 2009.

Crane, E., Gross, M. and E. Rothman. Methods for quantifying emotion-related gait kinematics. HCI Annual Conference, San Diego, CA, July 2009.

Edgeworth, R., Keen, B., Crane, E. and Gross, M. Effect of speed on emotion-related kinematics during walking. North American Congress on Biomechanics, Ann Arbor, MI, August, 2008.

Crane E., Gross M. (2007) Motion Capture and Emotion: Affect Detection in Whole Body Movement. In: Paiva A.C.R., Prada R., Picard R.W. (eds) Affective Computing and Intelligent Interaction. ACII 2007. Lecture Notes in Computer Science, vol 4738. Springer, Berlin, Heidelberg.

Gross, M.M., Crane, E.A. and Fredrickson, B.L. Effect of felt and recognized emotions on gait kinematics. American Society of Biomechanics Conference, Palo Alto, CA, August, 2007.

Cluss, M.B., Crane, E.A., Gross, M.M. and Fredrickson, B.L. Effect of emotion on the kinematics of gait. American Society of Biomechanics, September 6-9, 2006, Blacksburg, VA

Crane, E., Gross, M.M. and Fredrickson, B.L. Concurrence of facial and bodily expression: a feasibility study. 2006 CHI Conference Workshop: HCI and the Face, Montreal, CA, April, 2006.

Crane, E. and Gross, M.M. Emotion issues in HCI: working definitions and gold standards. Workshop on the Role of Emotion in Human Computer Interaction, Edinburgh, UK, September 6, 2005.

Gross, M.M., Gerstner, G.E., Koditschek, D.E., Fredrickson, B.L. and Crane, E.A. Emotion recognition from body movement kinematics. Proc. American Society of Biomechanics Annual Meeting, Portland, OR, September 2004.

Gross, M., Sowers, M.F., Lenard, K. and Furniss, A. Functional ability in mid-life women. Proc. American Society of Biomechanics Annual Meeting, Toledo, OH, October 2003.

O'Reilly, D., James, J., Fredrickson, B., Smith, B. and Gross, M. Effect of body representation on perception of affect. Proc. American Society of Biomechanics Annual Meeting, Toledo, OH, October 2003.

Meckmongkol, T.T. and Gross, M.M. Biomechanics of ballet arm movements: how does expression affect gesture kinematics? Gesture Workshop, April 18-20, London, England, 2001.

Chai, H. and Gross, M.M. Effect of COM acceleration on dynamic stability limit. Proc. American Society of Biomechanics Annual Meeting, Pittsburgh, PA, October 1999.

Miller, J.A. and Gross, M.M. Modeling hominid locomotion: biomechanical influences of Neandertal pelvic morphology and anatomical orientation. Proc. American Association of Physical Anthropology, Columbus, Ohio, April 1999.

Chai, H. and Gross, M.M. Dynamic balance control during maximum reach movements in elderly and young adults. Proc. North American Congress on Biomechanics, Waterloo, Ontario, August, 1998, pp. 249-250.

Streepey, J. and Gross, M.M. Influence of emotional intent on dance kinematics. Proc. North American Congress on Biomechanics, Waterloo, Ontario, August, 1998, pp.167-168.

Miller, J.A. and Gross, M.M. Biomechanical consequences of Neandertal pelvic morphology compared to recent humans. Proc. North American Congress on Biomechanics, Waterloo, Ontario, August, 1998, pp. 163-164.

Chai, H. and Gross, M.M. Effects of age and target direction on fast reach-reversal movements. Proc. American Society of Biomechanics Annual Meeting, Clemson, SC, September, 1997, pp. 240-241.

Streepey, J., Sudarsan, S., Gross, M. and Martin, B. Fatigue in a simulated basketball task on two playing surfaces. Proc. American Society of Biomechanics Annual Meeting, Atlanta, GA, 1996, pp. 43-44.

Moffatt, K., Gross, M., and Trotman, C-A. Three-dimensional analysis of facial motion. Proc. American Society of Biomechanics Annual Meeting, Stanford, CA, 1995, pp. 233-234.

Gross, M.M., Neil, N.B., Hofmeyer, M.R., Duren, W.L., and O'Bannon, T.O. Effect of an exercise program on chair-rise biomechanics in frail elderly. Proc. American Society of Biomechanics Annual Meeting, Stanford, CA, 1995, pp. 19-20.

Buck, J.L., Gross, M.M., and Alexander, N.B. Effect of age on performance during a strength-training program. Proc. American Society of Biomechanics Annual Meeting, Columbus, Ohio, 1994, pp. 71-72.

Gross, M.M. Effect of age and speed on the biomechanics of sitting down onto a chair. Proc. American Society of Biomechanics Annual Meeting, Iowa City, Iowa, 1993, pp. 21-22.

Gross, M.M. Neuromuscular coordination during chair-rise in the elderly. Proc. XIV Int. Soc. Biomechanics Congress, Paris, France, 1993, pp. 514-515.

Hoy, M.G. and Marcus, R. Effect of age and muscle strength on coordination of rising from a chair. Posture and Gait: Control Mechanisms, 1992, M. Woollacott and F. Horak (eds.), Vol. II, XIth International Symposium of the Society for Posture and Gait Research, Portland, May 24-27, 1992, pp. 187-190.

Delp, S., Loan, P., Hoy, M., and Rosen, J. Computer simulation of lower-extremity tendon transfers. Trans. Orthopaedic Research Society 36th Annual Meeting, p. 537, New Orleans, LA, 1990.

Delp, S., Loan, P., Hoy, M., and Zajac, F. Sensitivity of isometric muscle force to change in tendon length. Proc. First World Congress on Biomechanics, Vol. II, San Diego, CA, 1990, p. 211.

Hoy, M.G. and Stevenson, P.J. Coordination of rising from a chair in young and elderly women. Proc. 13th Annual Conference on Rehabilitation Technology (RESNA), pp. 113-114, Washington, D.C., 1990.

Hoy, M.G., Stevenson, P., Snow-Harter, C. and Marcus, R. Effects of a strength-training program on the dynamics of rising from a chair in elderly women. Proc. American Society of Biomechanics Annual Meeting, pp. 113-114, Miami, FL, 1990.

Schutte, L., Hoy, M.G., and Zajac, F.E. Biomechanical analysis of the limitations on performance of rising from a chair. 1990 Advances in Bioengineering, S.A. Goldstein (ed.), BED Vol 17, ASME Winter Annual Meeting, Dallas, TX, 1990.

Delp, S.L., Loan, J.P., Hoy, M.G., Topp, E.L., and Zajac, F.E. An interactive graphics-based model of the lower extremity to study tendon transfer surgeries. Advances in Bioengineering, B. Rubinsky (ed.), BED Vol 15, pp. 167-168, ASME Winter Annual Meeting, San Francisco, CA, 1989.

Pandy, M.G., Zajac, F.E., Hoy, M.G., Topp, E.L., Tashman, S., Stevenson, P.J., and Cady, C.T. Sub-optimal control of maximum-height, countermovement jump. Proc. Symp. on Modeling and Control Issues in Biomechanical Systems, pp. 27-44, ASME Winter Annual Meeting, Chicago, IL, 1988.

Yamaguchi, G.T., Hoy, M.G. and Zajac, F.E. Simulation of knee joint mechanics in two dimensions. Proc. North American Congress on Biomechanics, Vol. II, pp. 95-96, Montreal, Quebec, 1986.

Hoy, M.G., Zajac, F.E., Topp, E.L., Cady, C.T., Gordon, M.E. and Levine, W.S. Musculotendon energetics of human jumps. Proc. North American Congress on Biomechanics, Vol. II, pp. 247-248, Montreal, Quebec, 1986.

Gordon, M.E., Hoy, M.G., Zajac, F.E. and MacLean, K.E. A musculoskeletal model of the human lower extremity. Proc. 9th Annual Conference on Rehabilitation Technology (RESNA), pp. 448-450, Minneapolis, MN, 1986.

Hart, T.J., Cox, E.M., Hoy, M.G., J.L. Smith and Zernicke, R.F. Intralimb kinetics of perturbed paw-shake response. In: Biomechanics X. B. Jonsson (Ed.), Human Kinetics Publ., Champaign, IL, pp. 471-478, 10th International Congress on Biomechanics, Umea, Sweden, 1985.

Hoy, M.G., Zernicke, R.F. and Smith, J.L. Emergence of stable limb oscillations during paw-shake response. In: Biomechanics X. B. Jonsson (Ed.), Human Kinetics Publ., Champaign, IL, pp. 465-470, 10th International Congress on Biomechanics, Umea, Sweden, 1985.

Abstracts

Gross, M. and Gear, J. Developing observational skills in undergraduate students using formal analysis of fictive anatomy in representations of the body in Renaissance artworks and anatomical models. Anatomy Connected 2024, Toronto, ON, Mar 22-25, 2024. Anatomical Sciences Education, 17(1):84-85.

Phanudulkitti, C., Bavireddy, V., Mattison, D. and Gross, M. The impact of course design, gender, and academic level on student responses to an introductory IPE experience. Collaborating Across Borders VIII, online, May 16-18, 2023.

Fitzgerald, M., Patterson, V., Gross, M., Fisher, D. and Sweet, G. An innovative IPE curriculum visualization system simplified. Collaborating Across Borders VIII Conference, online, May 16-18, 2023.

Mangrulkar, R., Gross, M., Martin, L., Patterson, V., Smith, L. and Tschannen, D. Strategic and impactful interprofessional education using a transformational approach: A workshop for champions of change. National Academics of Practice Annual Forum 2023, Washington, DC, Mar 30-Apr 1, 2023.

Bodary, P., Gross, M., Vesia, M. and and Hasson, R. Providing daily teamwork in an introductory course to support the development of student community and to deliver authentic learning experiences. American Kinesiology Association Annual Meeting, San Diego, CA, Jan 26-28, 2023.

Neimer, R. & Gross, M. WISE HUB: Creating an online platform to support women and non-binary students in STEM by cultivating skills, building community, and changing the system. 2022 AAC&U Transforming STEM Meeting, Arlington, VA, Nov. 3-5, 2022.

Gross, M.M., Kang, G.E. and Li, X. Longitudinal stability of gait behavior within and between mood phases in individuals with bipolar disorder. North American Congress on Biomechanics, Ottawa, CA, August 21, 2022.

Anderson, O.A., Farris, K., Gross, M. Smith, L.J. and Ursuy, P.A. Teams and teamwork module: Learners' attitudes towards and awareness of role when working on an IPE team. Midwest Interprofessional Practice, Education, and Research Center Conference, online, September, 2020.

Phanudulkitti, C., Farris, K., Anderson, O., Bavireddy, V., Fitzgerald, M., Mattison, D., Patterson, V., Smith, L., Ursuy, P. and Gross, M. Cohort differences in the impact of an online introductory experience on student attitudes about interprofessional education. Nexus Summit 2020, online, August, 2020.

Sweet, G., Fisher, D., Fitzgerald, M., Gross, M., Halim, A., Patterson, V. and Weber, K. Design of an interprofessional education database for use by administrators, faculty and students across different health science schools. Nexus Summit 2020, online, Fall 2020.

Gross, M., Anderson, O., Daniels, T., Farris, K., Fitzgerald, M., Gao, M., Mattison, D., Moore, L., Najjar, G., Patterson, V., Ursuy, P. and Smith, L. A one-two punch: Introducing students to IPE with an online module followed by a face-to-face event. Collaborating Across Borders VII Conference, Indianapolis, IN, Oct 20-23, 2019.

Fitzgerald, M., Anderson, O., Farris, K., Gross, M., Ursuy, P., Mattison, D., Najjar, G., Daniels, T., Patterson, V. and Smith, L. Faculty implementation of a large-scale foundational IPE experience. Collaborating Across Borders VII Conference, Indianapolis, IN, Oct 20-23, 2019.

Najjar, G., Anderson, O., Daniels, T., Farris, K., Gross, M., Mattison, D., Patterson, V., Smith, L., Ursuy, P. and Fitzgerald, M. Faculty perceptions of interprofessional education experience: A qualitative analysis of "IPE in Action" event. Collaborating Across Borders VII Conference, Indianapolis, IN, Oct 20-23, 2019.

Smith LJ, Mattison D, Anderson L, Daniels T, Farris K, Fitzgerald M, Goa SM, Moore L, Najjar G, Patterson V, Ursuy PA, Gross M. From a Classroom to an Arena: Lessons Learned from a Large Scale Foundational PE Event. Collaborating Across Borders VII Conference, Indianapolis, IN, Oct 20-23, 2019.

Smith LJ, Farris K, Congdon HB, Daulton B, Fitzgerald M, Keehn MT, Najjar G, Sick B, Weber Z, Gross M. IPE and IPP Big 10 Collaboration: The Time is Right. Collaborating Across Borders VII Conference, Indianapolis, IN, Oct 20-23, 2019.

Borer, K.T., Zheng, Q., Daoud, A.I., Kernozek, T. and Gross, M.M. Morning downhill exercise reduces bone-resorption marker after midday, but not after morning, meal. American College of Sports Medicine Annual Meeting, Orlando, FL, May 28-June 1, 2019.

Stalburg, C., Gross, M., Templin, T., Fu, G. Analytics for interprofessional competencies. Information Technology in Academic Medicine Conference, Austin, TX, June 5-8, 2018.

Kang, G.E., Mickey, B., McInnis, M., Krembs, B. and Gross, M. Measures of activity- and energy-related gait variables as behavioral biomarkers of bipolar disorder: A 6-Month longitudinal study. Society of Biological Psychiatry Conference, New York, NY, May 10-12, 2018.

Gross, M. Using iterative storyboarding to develop student inquiry/analysis and oral communication skills. AAC&U 2017 Transforming STEM Higher Education Conference, San Francisco, CA, Nov 2-4, 2017.

Gross, M., Stalburg, C, Templin T, and Fu, G. Using digital infrastructure to track interprofessional educational competencies. Collaborating Across Borders VI Conference, Banff, AB, Canada, Oct 1-4, 2017.

Kang, G.E., Mickey, B., McInnis, M. and Gross, M. Lower extremity kinetics during gait in individuals with bipolar disorder. International Society for Posture and Gait Research World Congress, Fort Lauderdale, FL, June 25-29, 2017.

Gross, M. and Masters, C. Virtual dissection: Using active learning with the Anatomage Table to enhance student learning. Experimental Biology (American Association of Anatomists) Annual Meeting, Chicago, IL, Apr 22-26, 2017.

Kang, G.E. and Gross, M.M. Center of mass movement during sit-to-walk in healthy individuals while feeling emotions. International Society for Posture and Gait Research World Congress, Vancouver, BC, June 29-Jul 3, 2014.

Gross, M. Learning analytics in Kinesiology: use of course website tools by instructors and students. National Association for Kinesiology in Higher Education Collaborative Congress, San Diego, CA, Jan 8-11, 2014.

Borer, K.T., Zheng, Q., Daoud, A., Kernozek, T., Gross, M.M. and Roessler, B. Facilitation of osteogenic bone marker release in postmenopausal women by single rather than spaced mechanical loading or by anabolic hormone release. Endocrine Society, Boston, MA, June, 2011.

Gross, M., Keen, B., Edgeworth, R. Neutral emotion gait trials are not the same as baseline. 3rd International Congress on Gait & Mental Function, Washington, DC, Feb, 2010.

Borer, K.T., Ku, K., Daoud, A., Lash, R., Gross, M. and Kernozek, T. Bone marker responses to exercise parameters: relative effectiveness of mechanical, temporal, and hormonal stimulation. International Society for Clinical Densitometry/IOF Joint Meeting, Orlando, FL, March, 2009.

Borer, K.T., Daoud, A., Lash, R., Gross, M. and Kernozek, T. Forty, not 20, minutes of downhill walking increases the ratio of markers of bone formation relative to bone resorption in postmenopausal women. American College of Sports Medicine Annual Meeting, May, 2008.

Gross, M.M., Crane, E.A. and Fredrickson, B.L. Effect of felt and recognized emotions on body movements during walking. 4th International Conference on The (Non) Expression of Emotions in Health and Disease, Tilburg, The Netherlands, October, 2007.

Gross, M.M., Crane, E.A. and Fredrickson, B.L. Expression of emotion changes gait kinematics. International Society for Posture and Gait Research, Burlington, VT, July, 2007.

Crane, E.A., Gross, M.M. and Fredrickson, B.L. Expression of emotion in body and face. 6th International Conference on Intelligent Virtual Agents, In: Lecture Notes in Artificial Intelligence, J. Gratch, M. Young, R. Aylett, D. Ballin and P. Olivier (eds.), Springer-Verlag, Berlin, 2006, p. 452.

Gross, M.M., Crane, E.A. and Fredrickson, B.L. Comparison of front and side views in recognition of emotion in body movement. International Society for Research on Emotion Conference, Atlanta, GA, August, 2006.

Crane, E.A., Gross, M.M. and Fredrickson, B.L. Methods analysis for studying the concurrence of facial and bodily expression. International Society for Research on Emotion Conference, Atlanta, GA, August, 2006.

Gross, M.M., Crane, E.A. and Fredrickson, B.L. Effort shape analysis of emotion in body movements. Proceedings of Emotion Pre-Conference, Society of Personality and Social Psychology Conference, Palm Springs, CA, January 25-56, 2006.

Gross, M. and Kirshner, A. Interdisciplinary learning: motion capture course for the arts and sciences. International Digital Media and Arts Association and Miami University Interactive Media Studies Conference, Miami, OH, Apr 2006.

Fogleman, K.M, Gross, M.M. and Borer, K.T. Fitness level and vertical forces generated during walking in post-menopausal women. American College of Sports Medicine Annual Meeting, Nashville, TN, May 2005.

Crane, E.A., Gross, M.M., Fredrickson, B.L., Koditschek, D.E. and Gerstner, G.E. Validation of emotion in body movements. International Society for Research on Emotions Conference, New York, NY, July 2004.

Gross, M.M., Fredrickson, B.L., Koditschek, D.E., Gerstner, G.E. Kinematics of emotion in body movements. International Society for Research on Emotions Conference, New York, NY, July 2004.

Bartsch, M.A., Wakefield, G.H., Gross, M., Turnblom, M. and Shirley, G.I. Singer, hear thyself: matching of acoustic targets in a singer's own voice. Voice Foundation's 32nd Annual Symposium: Care of the Professional Voice, Philadelphia, PA, June 4-8, 2003.

Meckmongkol, T.T. and Gross, M.M. Effect of expressiveness on the kinematics of arm gestures. World Congress on Biomechanics, Calgary, AB, Canada, August, 2002.

Tyler, A.E., Karst, G.M. and Gross, M.M. The effect of reach distance on postural behavior. CSM.

Chai, H. and Gross, M.M. Effect of age, target direction, and end position on reaching movements. Physical Therapy, p. S67, Orlando, FL, June, 1998.

Gross, M.M. Using digital video for motion analysis. ASEE/IEEE Frontiers in Education Conference, Pittsburgh, PA, November, 1997 (abstract #1488).

Chai, H. and Gross, M.M. Effect of age and target direction on reaching movements. American Physical Therapy Association Ann. Mtg , p.S21, San Diego, CA, June, 1997.

Chai, H. and Gross, M.M. Effect of target direction on reaching movements in young and elderly subjects. Neuroscience Abstracts, p.1634, Washington, D.C., November, 1996.

Miller, J.A. and Gross, M.M. Biomechanical implications of Neandertal knee and ankle morphology. Proc. American Association of Physical Anthropologists Ann. Mtg., Oakland, CA, April, 1995.

Gross, M.M., Neil, N.B., Hofmeyer, M.R., Duren, W.L., and O'Bannon, T.O. Effect of an exercise program on coordination of chair-rise biomechanics in frail elderly. Multisegment motor control: Interfacing biomechanical, neural, and behavioral approaches, Research Section, American Physical Therapy Association, New Hampton, NH, August, 1995.

Alexander, N.B., Gu, M.J., Branch, M. Schultz, A.B., Ashton-Miller, J.A., and Gross, M.M. Influence of leg strength on rising from a chair in older adults. Proc. Gerontological Society of America Ann. Mtg, Atlanta, November, 1994.

Alexander, N.B., Gross, M.M., Buck, J., Grunwalt, J.A. and Jacobs, K.T. Exercise training affects how older adults rise from a chair. Proc. American Geriatric Society Ann. Mtg., Los Angeles, May, 1994, p. SA5.

Gross, M.M. Neuromuscular coordination during chair-rise in the elderly. J. Biomechanics. 27: 728, 1994.

Alexander, N.B., Gu, M.J., Branch, M. Schultz, A.B., Ashton-Miller, J.A., and Gross, M.M. Contributors to lack of success in rising from a chair in healthy old and Parkinson's old adults. Gerontologist 33: 49, 1993.

Zajac, F.E., Gordon, M.E., Hoy, M.G. and Loan, J. P. Accelerations of human lower-extremity joints induced by muscle forces: theoretical considerations. J. Biomechanics, 20: 890, 1988.

Hoy, M.G., Gordon, M.E. and Zajac, F.E. A human musculoskeletal model for predicting isometric musculotendon torques in the sagittal plane. J. Biomechanics, 20: 890, 1988.

Hoy, M.G., Gordon, M.E. and Zajac, F.E. A musculoskeletal model of the human lower extremity for predicting musculotendon torques in the sagittal plane. Neuroscience Abstracts, 13: 872, 1987.

Koshland, G.F., Zernicke, R.F., Hoy, M.G. and Smith, J.L. Comparison of transient oscillatory states during paw-shake response. Neuroscience Abstracts, 12: 686, 1986.

Zajac, F.E., Gordon, M.E. and Hoy, M.G. Physiological classification of muscles into agonist-antagonist muscle action groups: a theory and methodology based on mechanics. Neuroscience Abstracts, 12: 1424, 1986.

Gordon, M.E., Zajac, F.E. and Hoy, M.G. Postural synergies dictated by segmental accelerations from muscles and physical constraints. Neuroscience Abstracts, 12: 1425, 1986.

Hoy, M.G., Zajac, F.E., Topp, E.L., Cady, C.T. and Levine, W.S. Synergistic control of uniarticular and biarticular muscles in human jumping: a computer simulation study. Neuroscience Abstracts, 12: 1425, 1986.

Hart, T.J., Cox, E.M., Hoy, M.G., Smith, J.L. and Zernicke, R.F. Intralimb kinetics during paw shakes with disrupted knee motion. Neuroscience Abstracts, 11: 882, 1985.

Hoy, M.G., Zernicke, R.F. and Smith, J.L. The role of hip muscles during paw-shake response Neuroscience Abstracts, 11: 881, 1985.

Hoy, M.G., Zernicke, R.F. and Smith, J.L. Organization of limb dynamics during rapid oscillatory movements. J. Biomechanics, 19: 470-471, 1985.

Hoy, M.G. and Zernicke, R.F. Modulation of limb dynamics in the swing phase of locomotion Medicine & Science Sports Exercise, 16: 65, 1984.

Koshland, G.F., Hoy, M.G., Smith, J.L. and Zernicke, R.F. Neuromechanical organization: the emergence of unstable limb oscillations during paw-shake responses. Neuroscience Abstracts, 10: 339, 1984.

Hoy, M.G., Zernicke, R.F., Smith, J.L. and Garfinkel, A. Neuromechanical organization: the emergence of stable limb oscillations during paw-shake responses. Neuroscience Abstracts, 10: 339, 1984.

Hoy, M.G., Zernicke, R.F. and Smith, J.L. Intersegmental dynamics of the paw shake response Neuroscience Abstracts, 9: 63, 1983.

Zernicke, R.F., Butler, D.L., Grood, E.S., Noyes, F.R. and Hoy, M.G. Strain distributions and failure mechanisms of young human fascia and tendons. Medicine & Science Sports Exercise, 14: 130, 1982.

Hoy, M.G. and Zernicke, R.F. Mechanical synergy of cat medial and lateral gastrocnemius during isometric and isotonic contractions in situ. J. Biomechanics, 15: 347, 1982.

Zernicke, R.F., Smith, J.L., Sabin, C., Hoy, M.G. and Meyerott, N. Motor capacities of the chronic spinal cat: treadmill locomotion. J. Biomechanics, 14: 499-500, 1981.

Zernicke, R.F., Smith, J.L., Hoy, M.G. and Stewart, H.D. Kinetics of slow and fast ankle extensors of cat during jumping. J. Biomechanics, 13: 191, 1980.

Hoy, M.G. and Keller, D.P. Dynamic stability during basic ballet movements. Seventh Dance in Canada Conference Monograph, D. Taplin (Ed.), Pergamon Press, Toronto, 1979.

Invited Presentations

Leading institutional change through curriculum development: Designing for cross-cutting skill development and Diversity, Equity, & Inclusion in a foundational Movement Science course. Invited presentation with Peter Bodary and Kairos Marquardt. 2022 Leadership Workshop of the American Kinesiology Association, virtual, Jan 27, 2022.

Using a Gameful Strategy in Large Kinesiology Courses. Invited presentation with Pete Bodary. 2018 Gameful Learning Summer Institute, University of Michigan, Ann Arbor, Jul 24, 2018.

Helping Faculty Improve Teaching: Innovative Models of Instruction. Keynote presentation with Pete Bodary.

2018 Leadership Workshop of the American Kinesiology Association, Denver, CO, Jan 27, 2018

Effects of Image-based and Text-based Activities on Student Learning Outcomes. Active Learning Conference, Austin, TX, Oct 29, 2014

Undergraduate Course Case Study: Motion Capture and Animation for Biomechanics. American Society of Biomechanics Annual Meeting, Omaha, NE, Sep 6, 2013

Untapped_Imagination, TEDxUofM Conference, Ann Arbor, MI, Apr 5, 2013

M+Box: Improving Student Learning and Teamwork During Group Projects, Provost's Seminar on Teaching, Ann Arbor, MI, Oct 30, 2012

Why Feelings Matter: Emotions and Biomechanics in Health and Illness. ASB Fellows Symposium, American Society of Biomechanics Annual Meeting, Gainesville, FL, August 20, 2012.

Embodiment of emotion: how feelings affect body movements. Prechter Bipolar Lecture Series, Depression Center, University of Michigan, Ann Arbor, MI, October 3, 2011.

Bodily expression: effects of feeling an emotion on gait. Motion-emotion Interaction in Brain and Behavior Symposium, Depression Center, University of Michigan, Ann Arbor, MI, July 14, 2011.

Moving while feeling: expressing emotion in body movements. Institute for Social Research Group Dynamics Seminar, University of Michigan, Ann Arbor, MI, April 18, 2011.

Expressing emotion in body movement. Workshop on Biomechanics and Dance, Interdisciplinary Studies, University of Minnesota, Minneapolis, MN, November 13, 2004.

Kinematics of emotion in body movement. Upper Midwest Student Regional Meeting, American Society of Biomechanics, Minneapolis, MN, November 12, 2004.

"Retropioneering: Using technology to discover the basics of human movement. Preparing Future Faculty Program, Arizona State University, Tempe, Arizona, April 1, 1999

Can wrong turns lead to the right path? Finding your way at a research I university. Preparing Future Faculty Program, Arizona State University, Tempe, Arizona, Mar 31, 1999

Retropioneering: Using technology to discover the basics of human movement. Keynote address, Enriching Scholarship: Integrating Teaching, Information, and Technology Faculty Conference, Teaching and Technology Collaborative, University of Michigan, Ann Arbor, Michigan, May, 1998

Digital video and the web: using instructional technology to serve educational goals. Presentation to Teaching Board of Advisors to Indiana University South Bend's Center for Excellence in Teaching, Office of Instructional Technology, University of Michigan, Ann Arbor, January, 1997

Using digital video for motion analysis. Project Showcase, Expo '97, Office of Instructional Technology, University of Michigan, Ann Arbor, Michigan, February, 1997

Dynamic stability during chair-rise in older adults: does strength or balance limit performance? Neural Control of Movement Satellite Meeting, Cozumel, Mexico, April, 1997

Climbing the walls - Kinesiology and ITD partnership. Video presentation, M-Quality Symposium, University of Michigan, October, 1996

Using digital video for active learning in movement science. Faculty In-Service, Learning Technologies Department, Washtenaw Community College, November, 1996

Using digital video for motion analysis. Limb Integrative Neuromotor Control Group (LINC) Symposium, University of Western Ontario, London, Ontario, Canada, September, 1996

Using digital video for motion analysis. Focus on Teaching Seminar Series, Office of Instructional Technology, University of Michigan, Ann Arbor, Michigan, March, 1996

Human performance and leg fatigue related to flooring. Seminars in Ergonomics, Department of Industrial and Operations Engineering, University of Michigan, October, 1996

Coordination of chair-rise in frail elderly. Department of Physical Therapy, McGill University, Montreal, Quebec, Canada, April, 1996

Dynamics biomechanics in the elderly. Department of Bioengineering, Wayne State University, Detroit, Michigan, March, 1996

Mobility in the elderly: a biomechanical approach. Department of Kinesiology, University of Waterloo, Waterloo, Ontario, March, 1993

Effect of muscle strength on rising from a chair in the elderly. Department of Biomedical Engineering, Case Western Reserve University, Cleveland, Ohio, March, 1992

Modeling the human musculoskeletal system: application to surgery simulation. Neurological Sciences Institute, Portland, Oregon, July, 1990

Modeling the human musculotendinoskeletal system during locomotion. Engineering Foundation Conference, Henniker, New Hampshire, July, 1987

Intersegmental dynamics: decoupled equations of motion and muscle-induced accelerations. Department of Kinesiology, UCLA, Los Angeles, California, February, 1987

Biomechanics and neural control: application to oscillating movements. Rehabilitation Research and Development Center, Veterans Affairs Medical Center, Palo Alto, California, January, 1985

Emergence of stable limb oscillations during paw-shake responses. NINCDS, NIH, Bethesda, Maryland, January, 1985

Limb dynamics during non-weightbearing movements in the cat. Neurological Sciences Institute, Portland, Oregon, March, 1984

Biomechanics of dance movements. Two-week course, Repertory Dance Theater Summer Workshop, Salt Lake City, Utah, June, 1982

Mechanisms of dance injuries. Repertory Dance Theater Summer Workshop, Salt Lake City, Utah, June, 1981

Teaching and Learning Professional Development

Educating Health Professionals in Interprofessional Care Certificate Program, University of Toronto, Toronto, Ontario, Canada, June 18-22, 2018

Gameful Course Design Summer Institute, University of Michigan, Ann Arbor, July 24-25, 2017

Macy Train-the-Trainer Interprofessional Faculty Development Training Program, University of Washington, Seattle, WA, Aug 15-18, 2016

Courses Taught

Undergraduate Courses

Course Code	**Course Name**
Movesci 110	Biological and Psychological Bases of Human Movement (F95; W20-W22; F22; F23-W25)
Movesci 230	Human Musculoskeletal Anatomy (W02,W03-F06, F07, W09, W10, F10, F11-W16, W17-W22; F22)
Movesci 302	Art and Anatomy in the Italian Renaissance (SP18, SP22, SP23, SP25)
Movesci 305	Human Movement and Aging: Biomechanics and Motor Control Issues (F94, W96)
Movesci 313	The Art of Anatomy (F23, F24)
Movesci 313	The Body in Motion: Motion Capture for the Arts and Sciences (W06, W07)
Movesci 313	Biomechanics of Musculoskeletal Injuries (F05)

Movesci 330	Biomechanics of Human Movement (W94-W00; W08)
Movesci 411	Instrumentation and Measurement in Motor Control and Biomechanics (F93, W98, F99)
Movesci 430	Biomechanics of Human Movement II (F92, F93)
Movesci 433	Human Movement and Aging: Functional Ability (F98, W00, W03, W05)
Movesci 434	Scientific Inquiry with Motion Capture (F15; W16; W17; F17-F19; F23-W25)
Movesci 437	Motion Capture and Animation for Biomechanics (W11-W15)

University Courses

Course Code	**Course Name**
UC 263	Stradivarius as Biologist: Cultivating Bel Canto through Sound and Vision (Life Sciences Initiative Undergraduate Course) (F02, W04)

Graduate Courses

Course Code	**Course Name**
Kineslgy 500	Topical Seminar in Biomechanics (W93)
Kineslgy 510	Research Methods in Biomechanics (F04)
Kineslgy 513	Scientific Inquiry with Motion Capture (F23)
Kineslgy 530	Graduate Seminar in Biomechanics (W97, W99)

Mentoring

Postdoctoral Scholars

Year	**Name**
1993 - 1995	Amy Tyler, Ph.D.

Ph.D. Students – Dissertation Committee Chair

Student Name	Year	Description
Gu Kang	2017	Longitudinal study of motor behavior in bipolar disorder
Elizabeth Crane	2009	Measures of emotion: How feelings are expressed in the body and face during walking
Paul Moga	2002	On the relation between thoracic kyphosis, athletic training, hamstring tightness, and anthropometry in the developing spine (J. Ashton-Miller, Co-Chair)
Huei-Ming Chai	1999	Dynamic balance control during maximum reach movements
Luis Aragon-Vargas	1994	Kinesiological limits of vertical jump performance

Ph.D. Students – Kinesiology Dissertation Committee Member

Student Name	Year	Description
Matthew Mulligan	2024	TBA
Alex Denton	2023	Lower limb muscle-tendon unit properties in human locomotion
Luis Nolasco	2022	Biomechanical adaptations to lower limb amputation during functional mobility tasks
Larken Marra	2018	TBA
Christopher Herman	2008	A meta-analysis and methodological review of the association between leisure-time physical activity and the risk of colon and breast cancer
Gregory Sawicki	2007	Mechanics and energetics of walking with powered exoskeletons
Gerry Conti	2007	Coordination of bimanual arm movements in the elderly
Tal Liberzon	2003	Role of auditory cueing in the performance of rhythmic arm movements
Cathy Larson	2002	Reaching, prehension and obstacle clearance in essential tremor

Carol Cross	1997	The role of knowledge of results & sensory feedback in the error detection process

Ph.D. Students – Dissertation Committee Member – Other Departments

Student Name	**Year**	**Description**
Justin Haney	2019	Modeling Hand Movements in a Sequential Reach Task with Continuous Material (Industrial and Operations Engineering)
Rosemarie Figueroa	2017	Development of a Three-Dimensional Anthropometric Model for Simulating Hand Work (Industrial and Operations Engineering)
Heejin Jeong	2017	Computational Modeling and Experimental Research on Human-Machine Multimodal Interactions in Multi-Task Scenarios (Industrial and Operations Engineering)
Julie Lesnik	2011	Tools and termites: implications for the foraging behaviors of the Swartrans hominids
Trina Buhr	1998	Effects of leg muscle constraints on a lifting task examined through inverse kinematics analyses, direct dynamics modeling, and EMG biofeedback techniques (Industrial and Operations Engineering)
Ultrich Raschke	1994	Development and validation of a dynamic lumbar torso model for common sagittal plane manual materials handling motions (Bioengineering)
Heo-sek Park	1993	Neurophysiological analysis of hand vibration effects on sensorimotor control (Industrial and Operations Engineering)
Jeff Miller	N/A	Functional implications of Neandertal pelvic and hindlimb morphology (Biological Anthropology)

Ph.D. Student – Preliminary Examination Committees

Year	**Student Name**
2023	Matthew Mulligan
2020	Alex Denton

2019	Luis Nolasco
2018	Jaewoo Kim
2017	Justin Haney (Industrial and Operations Engineering)
2017	Sol Kim (Industrial and Operations Engineering)
2016	Heejin Jeong (Industrial and Operations Engineering)
2013	Rosemarie Figueroa (Industrial and Operations Engineering)
2012	Gu Kang (Chair)
2011	Eunjoo Hwang
2011	Evelyn Anaka
2010	Irully Jeong
2007	Elizabeth Crane (Chair)
2005	Gregory Sawicki
2004	Kathe Fogleman
2000	Jake Streepey (Chair)
1998	Gerry Conti
1997	Paul Moga (Chair)
1997	Huei-Ming Chai (Chair)
1997	Kathy Hinderer (Chair)
1997	Trina Buhr (Biomedical Engineering)
1996	Cathy Larson
1996	Shirley Musich
1996	Tal Liberzon
1994	Terry O'Bannon (Mechanical Engineering)
1993	Adi Wang
1993	Luis Aragon-Vargas

Ph.D. Students – Guidance Committees

Year	Student Name
2018 - 2019	Luis Nolasco
2010 - 2012	Gu Kang (Chair)
2007 - 2009	Lan Wei (Chair)
2006 - 2007	Alissa Harakal (Chair)
2004 - 2007	Elizabeth Crane (Chair)
2003 - 2005	Gregory Sawicki
2002 - 2004	Jodi James (Chair)
2001 - 2003	Kathy Fogleman
1998 - 2000	Jake Streepey (Chair)
1996 - 1997	Huei-Ming Chai (Chair)
1992 - 1993	Luis Aragon-Vargas (Chair)

Masters Degree Students with Thesis

Student Name	Year	Description
Katherine Elder	2025	Kinematics of aesthetics and emotional expression (chair)
Luis Nolasco	2017	Kinematics and dynamic balance during straight-line walking and turning in people with transtibial amputation (member)
Jessica Post	2013	Dance (member)
Melanie Cluss	2006	Kinematics of emotional expression during walking
Hyun Heo	2004	Comparison of kinematic analyses using two software packages: Visual3D and Kintrak
Daniel O’Reilly	2003	Effect of body representation on perception of affect in movement (Biomedical Visualization Program. School of Art and Design)

Teerin Meckmongkol	2001	How does expression affect gesture kinematics in ballet arm movements?
Elizabeth Crane	2000	Simulation of human motion with expressive dynamics
Jake Streepey	1998	Assessment of muscle fatigue on two surfaces after a simulated basketball task
Anne Wagoner	1995	Strength and balance training for balance improvement in older adults

Honors Students with Thesis

Student Name	**Year**	**Description**
Rebecca Edgeworth	2008	Role of gait speed in emotional expression during walking
Brendan Keen	2009	Neutral emotion gait trials are not the same as baseline
Josh D'Angelo	2010	Recognizing emotion in gait with video and virtual body displays

Professional Service

Research Proposal Reviews

- CDC Injury Prevention – Biomechanics, April 12-13, 2004
- NIH Special Study Section "Alternative Medicine", July 26-27, 1993
- The Hospital for Sick Children, Toronto, Ontario, 1989

Editorial Boards

- Journal of Applied Biomechanics, 1998-00
- Journal of Applied Biomechanics, 1992-94

Manuscript Reviews

- Anatomical Sciences Education
- Clinical Biomechanics
- Clinical Orthopaedics and Related Research
- Emotion
- Experimental Brain Research

- Gait and Posture
- Journal of Applied Biomechanics Journal of Applied Physiology Journal of Biomechanical Engineering
- Journal of Biomechanics
- Journal of Gerontology
- Journal of Motor Behavior
- Journal of Nonverbal Behavior
- Journal of Theoretical Biology
- Medicine and Science in Sports and Exercise

American Society of Biomechanics

Year of Service	**Role**
2018	Member, Program Committee
2011	Member, Abstract Review Committee
2008	Chair, NCAA Award Committee; Member, Postdoctoral Award Committee
2007	Member, Awards Committee
2006	Session Chair, ASB Annual Meeting
2003	Member, Abstract Review Committee
2001-02	Member, Awards Committee
2001-01	Past President
1999-00	President
1998-99	President-Elect
1997-98	Co-Chair, Third North American Congress on Biomechanics Meeting Committee
1997-98	Chair, ASB Program Committee
1997-98	Member, Research Review Committee, Grant-In-Aid Program
1997	Session Chair, ASB Annual Meeting
1996-97	Chair-Elect, Program Committee
1993	Session Chair, ASB Annual Meeting
1994	Session Chair, ASB Annual Meeting

1992	Session Chair, Second North American Congress on Biomechanics
1992-95	Chair, Membership Committee
1989-92	Secretary/Treasurer
1987-88	Member, Program Committee

Other Professional Societies

Year of Service	**Role / Description**
2010	Member, Abstract Review Committee, 3D Movement Analysis Meeting
1993	Scientific Committee, 2nd International Symposium on 3D Analysis of Human Movement Session Chair, 2nd International Symposium on 3D Analysis of Human Movement

Membership in Professional Societies

- American Society of Biomechanics
- American Association of Anatomists

University Service

University of Michigan Committees

Year of Service	**Role / Committee Name**
2023-24	Chair, Center for IPE Curriculum Leadership Advisory Committee
2022-23	Co-Chair, Center for IPE Curriculum Leadership Advisory Committee
2017-	Member, Center for IPE Executive Committee
2018-19	Member, Michigan Disciplinary-Based Education Research Committee
2018-19	Member, Provost's Task Force on a Michigan Undergraduate Education in the Third Century
2017-22	Member, IPE 101 Work Group, UM Center for Interprofessional Education
2017-18	Member, Faculty Development Committee, UM Center for Interprofessional Education

2016-18	Member, Academic Innovation Initiative Faculty Advisory Council Member
2016-17	Member, Academic Innovation Initiative Steering Committee
2015-16	Co-Chair, Residential Programs, Innovations, and Tools, DIAG Subcommittee
2015-	Member, Executive Committee, Michigan Center for Interprofessional Education
2015-18	Member, Curriculum Workgroup, Michigan Center for Interprofessional Education
2014-16	Member, Digital Initiatives Advisory Group (DIAG)
2014-15	Member, Steering Committee for Interprofessional Education
2014-15	Member, Developing a Tools and Technology Innovation Pipeline
2014-15	Member, Developing a Digital Programs Pipeline
2014-15	Member, Search Committee – Director, Digital Media Commons, University Library
2013-15	Member, CRLT Faculty Advisory Board
2013-14	Member, Search Committee - Associate University Librarian-Library Information Technology
2013-14	Unit Liaison, UM Bicentennial Planning Committee
2013-14	Member, Collaborative Domain Group
2013-14	Member, CRLT Faculty SIG on Instructional Technology
2012-14	Member, Provost's Online-education Policy and Strategy Committee (POPS)
2012-13	Member, Continuing and Professional Education Advisory Council (CPEAC)
2011-14	Member, Information Technology Governance Council
2011-12	Member, CRLT Faculty Learning Community
2008-09	Member, Kinesiology Dean Search Advisory Committee
2007-08	Member, Health Sciences Education Building Committee
2006-10	Member, Research Associate Deans Group

2005-07	Member, Multidisciplinary Learning and Team Teaching Steering Committee
2005-07	Member, Governing Committee for the Undergraduate Science Building
2005-07	Member, CTools Faculty Advisory Committee
2004-07	Kinesiology representative, Health Sciences Scholars Program
2002-04	Member, Cognate Panel, Faculty Grievance Review Boards
2000	Member, Grievance Review Committee
1997-99	Member, Academic Computing Advisory Committee
1997-98	Member, Faculty Steering Committee, University of Michigan Instructional Environment
1996	Member, Women in Science and Engineering Residential Program Ad Hoc Committee

Kinesiology Committees

Year of Service	**Role / Committee**
2023-25	Chair, Movement Science Curriculum Review Committee
2020	Member, MAES Committee
2018	Member, Masters Degree Committee
2016-18	Member, Kinesiology Curriculum and Instruction Committee
2014	Member, Kinesiology Building Committee
2014	Member, Sport Management Faculty Search Committee
2012-14	Chair, Movement Science Program
2012-14	Member, Curriculum and Instruction Committee
2009-10	Member, Sports Management Faculty Search Committee
2008	Member, Research Engineer Search Committee
2006-07	Chair, Movement Science Faculty Search Committee
2005-06	Co-Chair, Movement Science Faculty Search Committee
2001-03	Member, Sport Management Faculty Search Committee

2001-05	Member, Executive Committee
2001-05	Member, Curriculum Committee
2001-02	Chair, Movement Science Faculty Committee
1999-00	Chair, Movement Science Faculty Search Committee
1996-99	Member, Kinesiology Learning Resources Group
1994-95	Member, Planning Committee for Feasibility of Joint Ph.D. Program
1994-96	Member, ITD Partnership Advisory Committee (Kintech)
1994-95	Member, Executive Committee
1991-94	Member, Graduate Committee