

Ian M. Rice

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EDUCATION

PhD. Rehabilitation Science and Technology University of Pittsburgh	2010
M.S. Occupational Therapy Washington University School of Medicine	2002
B.S. Psychology University of Illinois, Champaign Urbana, IL	1999

PROFESSIONAL EXPERIENCE

Work:

Visiting and Collaborative Graduate Faculty: Minnesota State University of Mankato; Feb 20, 2013-present

Assistant Professor: Department of Kinesiology and Community Health; University of Illinois at Urbana Champaign; 2010-present.

Occupational Therapist: The Center for Assistive Technology; UPMC Health System, Pittsburgh, PA, 2007

Graduate:

VA Pre-Doctoral Fellow: Associated Health Rehabilitation Research Fellowship Veterans Administration Human Engineering Research Laboratories, University of Pittsburgh, October, 2007- 2009. (Research mentor: Dr. Michael Boninger & Dr. Rory Cooper,)

NSF, IGERT Pre-Doctoral Fellow: National Science Foundation Integrative Graduate Education and Research Training (IGERT) Fellowship at Human Engineering Research Laboratories, Pittsburgh, PA, Clinical research on manual wheelchair propulsion training using real time feedback software , 2006-2007. (Research mentor: Dr. Michael Boninger)

Research Associate/Doctoral Candidate: University of Pittsburgh, Human Engineering Research Laboratories, 2002- 2005. (Research mentor: Dr. Michael Boninger)

Research Assistant: Collaboration of Upper Limb Pain in Spinal Cord Injury (CULPSCI) University of Pittsburgh, 2002-2006 (Research mentor: Dr. Michael Boninger)

Research assistant: Assistive Technology Laboratory, Washington University School of Medicine - Program in Occupational Therapy, 2001-2002. (Research mentor: Dr. David Gray)

ACADEMIC HONORS

VA Pre-Doctoral Fellow	Human Engineering Research Laboratories University of Pittsburgh	2007- 2009
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NSF, IGERT, Pre-Doctoral Fellow	Human Engineering Research Laboratories University of Pittsburgh	2006-2007
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GRANTS

Rice, I, Hillman, C & Sosnoff J. *Wheelchair Propulsion Training in Children with Physical Disabilities*. NIH R21. submitted 10/1/2012 (\$402,210.00) Role: PI (30%)(scored/unfunded)

Rice I, Motl R & Rice, L *Promoting Physical Activity through a Manual Wheelchair Propulsion Activity Intervention in Persons with Multiple Sclerosis*. National Multiple Sclerosis Society (# IL 0005) 10/5/2012-11/05/2013. (\$109,679) Role: PI (35%) (funded)

Rice I & Sosnoff, J. *Effects of Wheelchair Configuration on Manual Wheelchair Propulsion Training in Reducing Injurious Propulsion Biomechanics in Novice Individuals*. University of Illinois Research Board, Award 12078, 3/1/2012-5/31/2013. (\$22,620) Role: PI (funded)

Rice I, Motl R, Rice, L, Abdelzaher T, McAuley, E & Smith D. *Promoting Physical Activity through a Manual Wheelchair Propulsion Activity Intervention in Persons with Mobility Limitations*. Illinois Interdisciplinary Innovative Initiative Grant for the period of May, 2012 –May 2014. \$137,910. Role PI (not funded)

Cooper, R., Crytzer T M, **Rice I** & Oyster, ML. *Development of Clinical Practice Guidelines for the Racing Smart Wheel*. Veterans Administration Pilot Grant (\$15,000) May 2013- September 2013, Role Co-I(funded)

Cooper, R., Crytzer T M, **Rice I** & Oyster, ML. *Development of Clinical Practice Guidelines for the Racing Smart Wheel*. Veterans Administration Pilot Grant, (\$25,000) 4/6/2012 - 9/31/2012 Role Co-I (funded)

Boninger ML & **Rice I**. *Manual Wheelchair Propulsion Training*. NIH 1-R03-HD049735-01A1. September 1, 2007 – September 1, 2008. (\$100.000) Role RA (funded)

PUBLICATIONS

Refereed Articles

Rice, I. M., Wong, A.W.K., Salentine, B.A. & Rice, L.A. (in press) Differences in Participation and self-Esteem between Power and Manual Wheelchair Users on a University Campus: A Pilot Study. *Disability and Rehabilitation*

Rice I. M., Jayaraman, C., Hsiao-Wecksler, E.T. & Sosnoff J.J. (in press) Kinetic and temporal spatial variability in manual wheelchair propulsion. *Archives of Physical Medicine and Rehabilitation*

Moon, Y., Jayaraman, C., Hsu, I.M., **Rice, I. M.**, Hsiao-Wecksler, E. T. & Sosnoff J. J. (in press) Variability of peak shoulder force during wheelchair propulsion as a function of shoulder pain, *Clinical Biomechanics*.

Rice IM , Pohlig R, Gallagher JD& Boninger ML. Hand Rim Wheelchair Propulsion Training Effect on Over Ground Propulsion Using Biomechanical Real Time Visual Feedback on Fulltime Wheelchair Users. *Archives of Physical Medicine and Rehabilitation*. 2013; 94(2):256-63.

Laferrier JZ, **Rice I**, Pearlman J, Spornier M, Cooper RM, Liu H, Cooper RA, Technology to Improve Sports Performance in Wheelchair Sports. *Sports Technology*, pp. 4-19, vol. 5, no. 1-2, 2012.

Koontz A, Worobey L, **Rice IM**, Collinger J, Boninger ML. Comparison between over ground and dynamometer manual wheelchair propulsion. *Journal of Applied Biomechanics*. 2012; (4):412-9.

Rice I, Gagnon D, Gallagher J, Boninger ML. Hand rim wheelchair propulsion training using biomechanical real time visual feedback based on motor learning theory principles. *Journal of Spinal Cord Medicine*. 2010; 1(33):33-43.

Cooper RA, Koontz AM, Ding D, Kelleher AR, **Rice I**, Cooper RM, Manual Wheeled Mobility: Current and Future Developments from the Human Engineering Research Laboratories, *Disability and Rehabilitation*, pp. 2210-2221, Vol. 32, No. 26, June 2010

Rice I, Impink B, Niyonkuru C, Boninger ML. Manual wheelchair stroke characteristics during an extended period of propulsion. *Spinal Cord*. 2009; 47(5): 413-417.

Authier EL, Pearlman J, Allegretti A, **Rice I**, Cooper RA. A sports wheelchair for low income counties. *Disability and Rehabilitation*. 2007; 29(11-12): 963-967.

Book Chapters

I. Rice, F. Hettinga, J.Z. Laferrier, M. Spornier, C.M. Heiner, B. Burkett, R.A. Cooper. The Paralympic Athlete: Handbook of Sports Medicine and Science, Yves Vanlandewijck and Walter Thompson, Editors, Wiley and Blackwell. Biomechanics (Chapter 2), pp. 33-50, 2011.

Rice, I., Laferrier JZ. Warrior Transition Leader Medical Rehabilitation Handbook, edited by LTC Paul F. Pasquina, MD, Rory Cooper, PhD, and Ron Drach. Washington, DC: Department of the Army, Office of The Surgeon General, Borden Institute, 2011.

Liu H, **Rice I**, Laferrier JZ, Cooper RA, Boninger ML, Cooper RM. *Wheelchair Sports*. Vicky Goosey-Tolfrey, Editor, Human Kinetics. Sports Chair Set-up and Selection, 2010

Rice I, Cooper RA, Cooper RM, Kelleher AR, Boyles A. *Sports and Recreation for People with Spinal Cord Injuries* (Chapter 19), 2008, pp. 455-477.

Cooper RA, Boninger ML, **Rice I**, Shimada SD, Cooper RM. *Elite Athletes with Impairments, Exercise in Rehabilitation Medicine, 2nd Edition*, W.R. Frontera, Editor-in-Chief, Human Kinetics Publishing, Champaign, IL, 2006. Chapter 2, pp. 332-353.

INVITED PRESENTATIONS

Rice, I., Crytzer T. M., & Oyster, M.L. & Bleakney, A. (Jan 2013). Preliminary analysis of the racing smart wheel. Wheelchair racing coaches summit, Olympic Training Center, Colorado Springs, CO (presenter)

Rice I “DRES Mission to Enhance Quality of Life for Individuals with Disabilities” Presented to University of Illinois Trustee Karen Hasara. Champaign IL, November, 2010

Rice I. “Manual Wheelchair Propulsion Feedback Training Software”. Faculty Presentation, Washington University Program in Occupational Therapy, St. Louis MO, July 2010.

Rice I. “Manual Wheelchair Propulsion Training Using Real time Feedback”. Developing Amazing Leaders Paralympic Conference, US Olympic Training Center, Colorado Springs CO, April, 2009

Rice I. “Equipment and Training Considerations for Wheelchair Athletes”, 23rd International Seating Symposium (ISS) Orlando, FL March 8, 2007

Rice I. & Cooper, R. “Locus of Control-A Client Centered Approach to AT Service Delivery”, State of the Science Workshop for Polytrauma at Walter Reed Army Medical Center, September 2006

Rice, I., Dicianno, B & Cooper, R. “Wheelchair Racing: Technique, Equipment and Injury Prevention”. American Academy of Physical Medicine & Rehabilitation Annual Assembly Philadelphia, PA October 27, 2005

PEER REVIEWED PROCEEDINGS

Rice, I., Sosnoff, J., Jayaraman, C., Hsu, I.M. & Hsiao-Wecksler, E. T. (June 30-July 3, 2012). Hand rim force variability during two speeds of wheelchair propulsion. Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference. Baltimore, MD (presenter).

Jayaraman, C., Culp, S., Anc, Z., Beck, C., **Rice, I.**, Sosnoff, J. (June 30-July 3, 2012). Correlation analysis of upper extremity motion during manual wheelchair propulsion: A preliminary investigation on coupling between arm segments. Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference. Baltimore, MD

Hsua I.M., Jayaraman, C., Culp, S., **Rice, I.**, Hsiao-Wecksler, E. T. & Sosnoff, J. (June 30-July 2, 2012). Variability and complexity of shoulder motion during wheelchair propulsion. Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference. Baltimore, MD (received student honorable mention award \$500).

Jayaraman C, Hsu IM , Moon YJ , Hsiao-Wecksler E T, **Rice I**, Sosnoff J& Beck C (August 15-18, 2012). Correlation analysis of upper extremity kinematics for manual wheelchair propulsion: A preliminary investigation on coupling between arm segments for people with spinal cord disorder. American Society of Biomechanics. Gainesville, FL.

Rice I., Jayaraman C. & Sosnoff J (March, 2013) Effects of Wheelchair Configuration on Manual Wheelchair Propulsion Training in Reducing Injurious Propulsion Biomechanics in Novice Individuals. 29th International Seating Symposium, Academic Paper Session. Nashville, TN (presenter)

Hsu, I.M., Moon, Y., Jayaraman, C., **Rice, I.**, Sosnoff J & Hsiao-Wecksler E.T. (September 4-8, 2013) Variability of upper extremity kinematics and shoulder pain during wheelchair propulsion: A vector coding analysis. American Society of Biomechanics. Omaha, NE

Jayaraman, C., **Rice I.**, Moon, Y., Hsu, I.M., Hsiao-Wecksler, H.T., Beck, C & Sosnoff, J.J. (September 4-8, 2013) A principle component analysis of kinematic variability during wheelchair propulsion. American Society of Biomechanics. Omaha, NE

Moon, Y., Jayaraman, C., Hsu, I. M., **Rice I., M.**, & Hsiao-Wecksler, E.,T & Sosnoff J.J. (September 4-8, 2013) Variability of peak shoulder force during wheelchair propulsion: The effect on shoulder pain. American Society of Biomechanics. Omaha, NE

Salatin B, **Rice I**, Teodorski E, Ding D, Cooper RA, A Survey of Outdoor Electric Powered Wheelchair Driving, Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference, Las Vegas, NV, CD-Rom, June 26-30, 2010

Rice I. Manual Wheelchair Propulsion Feedback Training Software. *Proceedings of the International Seating Symposium*, pp. 121-122, Orlando, FL, March 12-19, 2009.

Rice I, Boninger ML, Price R, Gallagher J. Manual Wheelchair Propulsion Feedback Training Software. *Institute for Rehabilitation and Research Day*, University of Pittsburgh, June 6, 2008

Turkovich , M, Koontz AM, Cowan R, **Rice I**, Boninger ML. The Effect of Shoulder Position on Pushrim Forces during Over Ground Manual Wheelchair Propulsion. *Proceedings of the Annual RESNA Conference*, Arlington VA, CD-ROM, June 26-30, 2008.

Betz K, Cooper RA, **Rice I**, Dicianno BE. Adaptive Sports: Professional Roles in Supporting Athlete Participation and Performance, *International Seating Symposium*, p. 181-184, Orlando, FL, March 8-10, 2007.

Koontz AM, **Rice I**, Cowan R, Boninger ML. Effects of Wheelchair Propulsion Training on Pushrim Kinetics, *American Society of Biomechanics Annual Meeting*, Stanford University, CA, August 22-25, 2007.

Furui T, Furui M, Shiraishi K, Tsuchia Y & **Rice I**. Childhood Interventions and Progressive Functional Limitation Among Adults with Cerebral Palsy at the age of 42, *6th International Congress on Cerebral Palsy*, Bled, Slovenia, April 20-22, 2006

Furui T, Boninger ML, Hunt PC & **Rice I**. Social Participation of Individuals with Spinal Cord Injuries Making the Transition from Walking to Using a Wheelchair, *Proceedings of the 20th Japanese Conference on the Advancement of Assistive and Rehabilitation Technology (RESJA)*, Saga City, Japan, pp. 188-189, September 2005.

Rice I, Boninger ML, Koontz AM & Cooper RA. Characteristics of the Manual Wheelchair Propulsive Stroke Under Fatigue Conditions, *Proceedings of the 28th Annual RESNA Conference*, Atlanta , GA , CD-ROM, June 25-27, 2005

Furui T, Boninger ML, Hunt PC, Fitzgerald SG & **Rice I**. Effect of Transition from Walking to a Wheelchair on Participation in Spinal Cord Injury, *Proceedings of the 28th Annual RESNA Conference*, Atlanta, GA, CD-ROM ,June 25-27, 2005

Koontz AM, **Rice I**, Boninger ML & Cooper RA. Wheelchair Users with SCI Exhibit Paradoxical Trunk Movement During Propulsion, *3rd International Congress, "Restoration of Wheeled Mobility in Spinal Cord Injury Rehabilitation: State of the Art III,"* Vrije Universiteit, Amsterdam, The Netherlands, April 19-21, 2004.

Rice I, Boninger ML, Souza AL, Cooper RA. Wrist Pain Strength and Function in Individuals with Paraplegia. *26th Annual RESNA Conference*, Atlanta, GA, CD-Rom, 2003.

Rice I, Koontz AM, Boninger ML, Cooper RA. An Analysis of Trunk Excursion in Manual Wheelchair Users. *27th Annual RESNA Conference*, Orlando, FL, CD-Rom, June 20-22, 2004.

Rice I, Boninger ML, Koontz AM, Cooper RA. Characteristics of the Manual Wheelchair Propulsive Stroke Under Fatigue Conditions. *28th Annual RESNA Conference*, Atlanta, GA, CD-ROM, June 25-27, 2005.

Teaching

Courses Taught

- REHAB 520 Psychosocial Aspects of Disability(graduate): Spring 2011, 2012
- Kin 360 Adapted Physical Education (undergraduate): Fall 2011
- Kin 355 Biomechanics of Human Movement, Fall-Spring 2012, 2013
- KIN 385: Experience in Kinesiology Research
- Kin 485: Clinical Experience in Sports Medicine supervisor/mentor

Students Advised

- Dissertation Committees
 - Sunghoon Shin, Spinal Cord Injury and Seated Postural Control, Kinesiology
 - Karla Wessels, Concussions in Wheelchair Athletics
 - Marissa Sible, Assessment of accessibility and perceived accessibility of campus recreation facilities by students with mobility impairments.
- Doctoral thesis Advisor
 - Chandrasekaran Jayaraman
- Master's Thesis Advisor
 - Benjamin A. Salentine
 - Chandrasekaran Jayaraman
 - Jennifer Lynn Dysterheft
 - Yaejin Moon

Reviewing

- I have reviewed manuscripts for the following journals: *American Journal of Physical Medicine and Rehabilitation, Spinal Cord, Spinal Cord Injury Medicine & Assistive Technology, Assistive Technology, Medical Engineering & Physics & Journal of Electromyography and Kinesiology, Archives of Physical Medicine and Rehabilitation, Transactions on Neural Systems and Rehabilitation Engineering*

I have served as a grant reviewer for University of Missouri Spinal Cord Injuries Research Program, 2011-2013

Professional Membership

Rehabilitation Engineering and Assistive
Technology Society of North America (RESNA)

2002-2013