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### **EDUCATION**

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In progress	Ph.D.	Biomedical Engineering University of South Florida Department of Mechanical Engineering Tampa, Florida
2000	M.S.	Biomedical Engineering University of Miami Miami, Florida
1996	B.S.	Engineering Science, Biomedical University of Florida Gainesville, Florida

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### **PROFESSIONAL EXPERIENCE**

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2003 – Present	Instructor PhD Candidate	<i>University of South Florida College of Engineering Mechanical Engineering Tampa, Florida</i>
2004- Present	Research Assistant	<i>University of South Florida College of Engineering Rehabilitation Engineering Tampa, Florida</i>
2005 –Present	Technical Advisor	<i>Motion Analysis Laboratory University of South Florida College of Medicine Tampa, Florida</i>
2001-2003	Systems Engineer Customer Trainer	<i>Peak Performance Technologies Englewood, Colorado</i>
2002-2003	Adjunct Math Instructor	<i>Front Range Community College Boulder, Colorado</i>

2002	Adjunct Math Instructor	<i>Denver Career College Denver, Colorado</i>
1996-2000	Research Associate	<i>The Miami Project to Cure Paralysis University of Miami School of Medicine Miami, Florida</i>
1993-1995 (summer)	Research Assistant	<i>The Miami Project to Cure Paralysis University of Miami School of Medicine Miami, Florida</i>

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## PUBLICATIONS

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### Journal Publications

Highsmith MJ, Carey SL, Koelsch KW, Lusk CP, Maitland ME. Kinematic Evaluation of Terminal Devices for Kayaking with Upper Extremity Amputation. *Journal of Prosthetics and Orthotics*, Volume 19, # 3, July 2007.

Highsmith MJ, Carey SL, Koelsch KW, Lusk CP, Maitland ME. Design and Fabrication of a Passive-Function, Cylindrical Grasp Terminal Device for Kayaking: The USF Kayak Hand. Technical Note. In review *Prosthetics Orthotics International*.

Lutton, S, Pinzon, A and Jacobs, PL. Integrated timing device for improved standing exercise of paraplegics. *Critical Reviews<sup>TM</sup> of Biomed. Eng.*, Dec. 2000.

Calancie, B, Lutton, S, Broton, JG. Central nervous system plasticity after spinal cord injury in man: interlimb reflexes and the influence of cutaneous stimulation. *Electroenceph. Clin. Neurophysiol.*, 1996, 101:304-315.

### Acknowledgements

Broton, JG, et al. Kinematic analysis of limb position during quadrupedal locomotion in rats. *J. Neurotrama*, 1996,13: 409-416.

Calancie, B, et al. Involuntary stepping after chronic spinal cord injury: evidence for a central pattern generator for locomotion in man. *Brain*, 1994, 117: 1143-1159.

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## CONFERENCE PRESENTATIONS AND PROCEEDINGS

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### Podium presentations

Carey, SL Feb. 2008, Compensatory motion of a transradial prosthesis wearer during common tasks, **Submitted abstract**. *The Academy of Orthotists and Prosthetists 34<sup>th</sup> Annual Meeting and Scientific Symposium (AAOP)*, Orlando, FL

Carey, SL, Highsmith, MJ, Dubey, R, Dec. 2007, Compensatory motion caused by forearm restriction while turning a steering wheel for transradial prosthetic design, **Accepted paper**. *13<sup>th</sup> National Conference on Machines and Mechanisms (NaCOMM 2007)*, Bangalore, India.

Carey, SL, Highsmith, MJ, Dubey, R, Range of motion of upper limb joint angles during two tasks for transradial prosthetic design. *Proceedings of the ASME 2007 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*. Las Vegas, NV. Sept. 2007.

Maitland, ME, Lusk, CP, Highsmith, MJ, Carey, SL. A Non-Anatomical Grasp Mechanism for Artificial Hands. *12<sup>th</sup> World Congress of the International Society for Prosthetics and Orthotics*. Vancouver, Canada. August 2007.

Lutton, S, et al. A force measuring walker for SCI gait evaluation. *19<sup>th</sup> Southern Biomedical Engineering Conference*. Blacksburg, VA. April 2000.

#### **Poster presentations**

Carey, SL, Highsmith MJ, Dubey, R. Compensatory range of motion of transradial prosthesis users while opening a door. *Biomedical Engineering Society Annual Meeting*. Hollywood, CA. September 2007.

Maitland ME, Highsmith MJ, Carey SL, Koelsch K, Lusk C. A Simple Artificial Hand for Cylindrical Grip: The USF Kayak Hand. *15th International Conference "World Physical Therapy 2007."* Vancouver, Canada. June 2007.

Carey, SL, Highsmith, MJ, Dubey, R. Compensatory Motion During a Bilateral Lifting Task for Transradial Prosthetic Design. *Proceedings of the ASME 2007 Summer Bioengineering Conference*. Keystone, CO. June 2007.

Carey, SL. Dubey, R., Highsmith, MJ. Compensatory motion of the upper limb while turning a steering wheel for transradial prosthetic design. *3rd Annual Interdisciplinary Graduate Student Research Symposium*. University of South Florida, Tampa, FL. April 2007.

Nolla, TC., Carey, SL.;Mentor: Dubey, R. Validity of Upper Limb Joint Angles Using a Vicon Motion Analysis System. *1<sup>st</sup> Annual Celebration of Scholarship Day*. University of South Florida, College of Engineering, Tampa, FL. April 2007.

Nolla, TC.; Mentors: Carey, SL., Dubey, R. Compensatory Motion of Transradial Amputees While Drinking from a Cup. *Undergraduate Research Symposium*. University of South Florida, Tampa, FL. April 2007.

Carey, SL, Dubey, R., Maitland, ME, Highsmith, MJ. Effects of mass on upper limb joint angles for prosthetic design. *Biomedical Engineering Society Annual Meeting*. Chicago, IL. October 2006

Carey, SL. Effects of mass on upper limb kinematics for prosthetic design: A pilot study. *2nd Annual Interdisciplinary Graduate Student Research Symposium*. University of South Florida, Tampa, FL. April 2006.

Lutton, S, et al. Integrated timing device for improved standing exercise of paraplegics. *18<sup>th</sup> Southern Biomedical Engineering Conference*. Clemson, SC. May 1999.

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### RESEARCH GRANTS

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- Highsmith MJ (PI), Lusk C (Co-PI), Carey SL(Co-I), Kahle JT (Co-I), Maitland ME (Co-I). *Kinetic and Kinematic comparison of power assisted versus stance control artificial knees during sit to stand and stand to sit transfers for above knee amputees*. Corporate Travel Grant from Ossur Prosthetics. 07/01/2006-07/01/2007. \$5,000
- Highsmith MJ (PI), Maitland ME (Co-PI), Carey SL(Co-I). *Design, Fabrication and Evaluation of a Terminal Device for Kayaking*. Florida Physical Therapy Association (FPTA), Linda Krane Research Grant. 06/2006-06/2007. \$4,000
- Conference Presentation Grant, University of South Florida, Student Government Funded: \$ 400.00

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### PROFESSIONAL CERTIFICATION AND TRAINING

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- Cosmed K4 mobile metabolic system training, March 2007.
- Vicon Bodybuilder Training Course, Jan. 2006.
- Colorado Department of Higher Education, Division of Private Occupational Schools Private Occupational Credential, Oct 2002.
- Advanced CPR Feb. 1999.
- LabVIEW Basics training, Oct 1997.

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### HONORS AND AWARDS

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- Student Travel Award: \$500, *3rd Annual Interdisciplinary Graduate Student Research Symposium*, supported by NSF IGERT and Bridge to Doctorate program, University of South Florida, April 2007.
- Student Travel Award: \$500, *2nd Annual Interdisciplinary Graduate Student Research Symposium*, supported by NSF IGERT and Bridge to Doctorate program, University of South Florida, April 2006.
- Student Conference Award, supported by the Whitaker Foundation, given at the

19<sup>th</sup> Southern Biomedical Engineering Conference, April 2000.

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### **PROFESSIONAL AFFILIATIONS**

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- Delta Kappa Gamma Society Internatioanl, Mu State, Beta Theta chapter, Key Women Educators Society – member: May 2007-present
- Institute of Electrical and Electronics Engineers (IEEE) – member: 2006- present
- American Society of Mechanical Engineers (ASME) – member: 2006- present
- AcademicKeys Who's Who in Higher Education Engineering (WWHEE) - member, 2006-2007.
- Biomedical Engineering Society (BMES) – member: 2006- present
- American Association of University Professors (AAUP) - member, 2002-2003.

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### **VOLUNTEER SERVICE**

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2004-2007	Engineering Expo, University of South Florida, Tampa, Florida
2002-2003	Volunteer, Denver Children's Hospital, Denver, Colorado
1997-2000	Sponsor for "Shadow an Engineer Days," Dade County Schools, Miami, Florida