Kristin Denise Morgan

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OBJECTIVE: To obtain employment as a research scientist/engineer

EDUCATION:

2010 – Present	University of Tennessee Ph.D. student in Biomedical Engineering Anticipated date of graduation May 2014	Knoxville, TN
2007 – 2009	Virginia Commonwealth University Master's in Biomedical Engineering	Richmond, VA
2003 – 2007	Duke University Pratt School of Engineering B.S. Biomedical Engineering	Durham, NC

WORK and RESEARCH EXPERIENCES:

August 2010 – May 2014 Reinbolt Research Group University of Tennessee Knoxville, TN

Worked as a member of a team in Dr. Jeffrey Reinbolt's laboratory to conduct research that used computer simulations and experimental data to understand human movement with particular interest on understanding muscle function during single-leg jump landing with regards to Anterior Cruciate Ligament (ACL) injury risk. Presented research at conferences, participated in a grant writing institute, helped organize weekly lab meetings and mentored undergraduates. Served as guest lecturer and grader for a dynamics course.

Thesis Topic: Dynamic Simulations and Data Mining of Single-Leg Jump Landing: Implications for Anterior Cruciate Ligament (ACL) Injuries

Thesis Advisor: Dr. Jeffrey Reinbolt Department of Mechanical, Aerospace and Biomedical Engineering

August 2010 – August 2012 PEER Program Knoxville, TN

Served as a Program for Excellence & Equity in Research (PEER) fellow where I participated in workshops aimed to develop public speaking skills for a professional audience and writing skills for fellowships. Attended weekly discourse meetings where faculty mentors could discuss their various career pathways and obtain advice on how to prepare for a career in academia and/or industry. Served on the planning committee for the 2nd Annual PEER Symposium entitled "Network for Success at the University of Tennessee" where the goal was to provide undergraduates and graduates in the Science, Technology, Engineering and Math (STEM) disciplines with skills to be successful in academia, industry, government or public sector.

May 2010 – August 2010 NASA DEVELOP Program Intern Hampton, VA

Served as a team lead on a project to assess Outer Banks shoreline erosion. NASA Satellite Imagery was used to delineate the Outer Banks shoreline. Tracked the impact of previous hurricanes that hit the Outer Banks, measured and analyzed the effect of vegetation loss to the area. Created a predictive algorithm to estimate future shoreline erosion. Research from this project was presented at the 18th William T. Pecora

Memorial Remote Sensing Symposium on November 14-17, 2011 in Herndon, VA.

January 2010 – April 2010 NASA DEVELOP Program Intern Hampton, VA

Worked on a team that studied California Natural Disasters - the 2009 Station Fire. Identified models to predict the type and amount of wildfire emissions. Used the NASA Earth Observing System satellite data to collect emissions and air quality data. Analyzed data to understand the effects that the emissions have on public health. Presented results to NASA Develop Management and Directors.

August 2007 – August 2009 Virginia Commonwealth University Richmond, VA

Worked in a biomechanics research laboratory of Dr. Peter Pidcoe's and conducted research to investigate how fatigues changes in lower extremity biomechanics during functional activity via the use of a tri-accelerometer. This research involved collecting and utilizing Motion Monitor motion capture system to measure lower extremity joint biomechanics during a jump landing protocol and employed data analysis techniques to assess joint stability as the individual fatigued.

August 2007 – August 2009 Virginia Commonwealth University Richmond, VA

Served as an assistant to the administrative assistant in the office of the Dean of Engineering. At the request of the Dean, prepared PowerPoint presentations with graphics, sound and animation and drafted a white paper on the impact of the new GI Bill on student enrollment on engineering.

July 2006 – August 2006 Hampton University Hampton, VA

Conducted research with a Department of Chemical Engineering professor. Performed numerical studies that used robust tracking methods to synchronize two non-linear signals for drug delivery applications. Developed and implemented routines using the MATLAB Simulink software.

July – August 2005 ECATS Knoxville, TN

Worked with a statistician to conduct the data analysis of environmental compliance audit data using both Excel and the MINITAB statistical software as part of a statistical consulting contract with Environmental Consulting and Training Services, Inc. (ECATS), Knoxville, TN.

May – August 2004 Rensselaer Polytechnic Institute Troy, NY

Served as a member of the research team in the biochemistry laboratory of Dr. Robert Linhardt, Senior Constellation Professor of Biocatalysis and Metabolic Engineering. Conducted research using Surface Plasmon Resonance to study carbohydrate-protein interaction, particularly the interaction between heparin and the Hepatitis C envelope proteins. Developed and presented a Power Point talk describing my research.

PUBLICATIONS:

Morgan, K.D., C.J. Donnelly, and J. Reinbolt. 2013. Lower Extremity Muscle Force Estimates during the Weight-Acceptance Phase of Single-Leg Jump Landing: Implications for ACL Injury Risk. [In Review]

Morgan, K.D., M.H. Morgan, and P.E. Pidcoe. 2010. Statistical Assessment of the Time to Stabilization with Gait Fatigue. In JSM Proceedings, Section on Physical and Engineering Sciences. Vancouver, British Columbia: American Statistical Association.

Master's Thesis: The Use of a Tri-Axial Accelerometer to Measure Changes in Lower Extremity Fatigue during Functional Activity (August 2009).

Morgan, K.D., M.H. Morgan, C.B. Morgan, and P.E. Pidcoe. 2009. Using Haar Wavelets and Order Recurrence Plots (ORPs) to Statistically Assess Gait Fatigue. In JSM Proceedings, Section on Physical and Engineering Sciences. Alexandria, VA: American Statistical Association.

ABSTRACTS:

Morgan, K., Donnelly, C.J. and Reinbolt, J. Muscular Contributions to Knee Accelerations during Single-Leg Jump Landing in Australian Football Players. Presentation at the American Society of Biomechanics, 2013, Omaha, NE.

Morgan, K., Donnelly, C.J. and Reinbolt, J. Utilizing Data Mining to Predict Elevated Knee Loading in Athletes and Assessing their Risk for Anterior Cruciate Ligament Injury. Podium presentation at the Joint Statistical Meeting, 2013, Montreal, Canada.

Morgan, K., Donnelly, C.J. and Reinbolt, J. Muscle Force Estimates During the Weight-Acceptance Phase of Single-Leg Jump Landing. Presentation at the American Society of Biomechanics, 2012, Gainesville, FL.

Morgan, K.D., Morgan, M.H., Morgan, C.B. Using Principal Components Analysis to Model Muscle Force Contribution in ACL Injury. Podium presentation at the Joint Statistical Meeting, 2012, San Diego, CA.

Morgan, K., Donnelly, C.J. and Reinbolt, J. Weakened Trunk Muscles Influence Knee Valgus Moments Associated with ACL Injury. Poster presentation at the Biomedical Engineering Society Conference, October 2011, Hartford, CT.

Morgan, K., Donnelly, C.J. and Reinbolt, J. Muscle Forces During Single Leg Jump Landing. Poster presentation at the American Society of Biomechanics, 2011, Long Beach, CA.

PRESENTATIONS:

Morgan, K., Donnelly, C.J. and Reinbolt, J. Muscular Contributions to Knee Accelerations during Single-Leg Jump Landing in Australian Football Players. Presentation at the American Society of Biomechanics, 2013, Omaha, NE. [Poster]

Morgan, K., Donnelly, C.J. and Reinbolt, J. Utilizing Data Mining to Predict Elevated Knee Loading in Athletes and Assessing their Risk for Anterior Cruciate Ligament Injury. Podium presentation at the Joint Statistical Meeting, 2013, Montreal, Canada. [Podium]

Morgan, K. Importance and Benefits of Science, Technology, Engineering and Mathematics (STEM) Career Paths. Invited Talk to Tennessee Louis Stokes Alliance Minority Program (TLSAMP) Students, 2012, University of Tennessee, Knoxville, Tennessee.

Morgan, K., Donnelly, C.J. and Reinbolt, J. Muscle Force Estimates During the Weight-Acceptance Phase of Single-Leg Jump Landing. Invited International Talk, 2012, University of Western Australia, Perth, Australia.

Morgan, K., Donnelly, C.J. and Reinbolt, J. Muscle Force Estimates During the Weight-Acceptance Phase of Single-Leg Jump Landing. Presentation at the American Society of Biomechanics, 2012, Gainesville, FL. [Poster]

Morgan, K.D., Morgan, M.H., Morgan, C.B. Using Principal Components Analysis to Model Muscle Force Contribution in ACL Injury. Podium presentation at the Joint Statistical Meeting, 2012, San Diego, CA. [Podium]

Morgan K., Donnelly, C.J. and Reinbolt, J. 2011. Weakened Trunk Muscles Influence Knee Valgus Moments Associated with ACL Injury. Poster presentation at the Biomedical Engineering Society, Hartford, CT. [Poster]

Morgan, K., C.J. Donnelly and J. Reinbolt. 2011. Muscle Forces During Single Leg Jump Landing. Poster presentation at the American Society of Biomechanics, Long Beach, CA. [Poster]

Morgan, K.D., Morgan, M.H., Morgan, C.B. and Pidcoe, P.E. 2009. Using Haar Wavelets and Order Recurrence Plots (ORPs) to Statistically Assess Gait Fatigue
2009 Joint Statistical Meetings Physical and Engineering Sciences Section, Washington, DC. [Podium]

TEACHING EXPERIENCES:

Guest lecturer for a Dynamics course. *Motion of Relative to Rotating Axes*. September 2011, University of Tennessee, Knoxville, TN.

Guest lecturer for a Dynamics course. *Rigid Body Equations of Motion*. October 2012, University of Tennessee, Knoxville, TN.

AWARDS:

Whitaker International Summer Grant Summer 2012
This award provides US bioengineers and biomedical engineers funding to pursue a summer of high-quality research in an international setting. The purpose of the award is to improve the expertise of the participant as a scientist; build individual as well as institutional partnerships and establish dialogues between the scientific communities in the US and the rest of the world. Worked with collaborators at the University of Western Australia who specialized in advanced motion capture techniques and modeling using electromyography systems to measure full body kinematics, kinetics and muscle activation during single-leg jump landing data in female athletes. The data obtained will be used for thesis research.

Grant Writing Institute Certificate Summer 2012
Completed the University of Tennessee Summer Grant Writing Institute. Gained valuable skills to be used in the pursuit of fundable research proposals. Learned techniques for writing and submitting a grant and developed a proposal that was presented to National Institutes of Health Program Officers.

Program for Excellence & Equity in Research (PEER) Fellowship 2010-2012
The $25,000 annual fellowship is designed to increase the number of accomplished and talented underrepresented minority students pursuing a Ph.D. in the biomedical science area and to encourage them to undertake a career in biomedical research. PEER scholars participate in professional development workshops aimed at improving grant writing, research and presentation skills. The scholars interact with senior faculty mentors in the STEM.

STRENGTHS:

Good oral and written communication skills
Strong team skills and works effectively with mentors
Motivated, sets high goals and works diligently to achieve them
Organized and uses time and resources proficiently

MEMBERSHIPS AND ACTIVITIES:

2013 – present	American Society of Biomechanics
2012 – present	International Society of Biomechanics
2012 – present	The Honor Society of Phi Kappa Phi
2011 – present	Biomedical Engineering Society
2010 - 2012	PEER Served on the Planning Committee for the 2nd PEER Graduate student symposium held in the spring of 2012.
2004 - 2007	Duke Club Rugby
2003 - 2007	National Society of Black Engineers Treasurer 2005-2006, 2006-2007
Fall 2005	Health Career Internship Program Volunteered in the Orthopedics Unit of the Duke Hospital. Interacted and assisted with patients, shadowed medical doctors and observed surgical procedures.

COMPUTER SKILLS: Strong knowledge of Windows XP and the Microsoft Office Software (Word, Excel, Power Point, etc.), OpenSim, MATLAB and MINITAB software.

INTERESTS: Running Completed 2011, 2012 and 2013 Knoxville half-marathon

International travel to Australia, Bahamas, Brussels, Canada, Indonesia, Jamaica, Mexico and London.