Derek J. Lura, PhD

Assistant Professor, Department of Bioengineering
U. A. Whitaker College of Engineering, Florida Gulf Coast University
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Education

Doctor of Philosophy, Mechanical Engineering *2012 University of South Florida, Tampa*
Dissertation: The Creation of a Robotics Based Human Upper Body Model for Predictive Simulaion of Prostheses Performance.
Advisor: Dr. Rajiv Dubey (Mechanical Engineering)

Master of Science in Mechanical Engineering *2008 University of South Florida, Tampa*
Theses: Modeling Upper Body Kinematics While Using a Transradial Prosthesis
Advisor: Dr. Rajiv Dubey (Mechanical Engineering)

Bachelor of Science in Mechanical Engineering *2007 University of South Florida, Tampa*

Positions and Employment

Florida Gulf Coast University, Fort Myers *2013-Present*
Associate Professor, Department of Bioengineering
Assistant Professor, Department of Bioengineering

University of South Florida, Tampa *2005-2013*
Instructor, Department of Mechanical Engineering
Post-Doctoral Researcher, Center for Assistive, Rehabilitation & Robotics Technologies
Graduate Research Assistant, Center for Assistive, Rehabilitation & Robotics Technologies
Graduate Teaching Assistant, Department of Mechanical Engineering

Certifications & Professional Affiliations

- Engineering Intern, Florida Board of Professional Engineers (FBPE)
- SolidWorks Certified Associate (Dassault Systemes, C-E66WJ7QJUG)
- American Society of Mechanical Engineers (ASME), Former USF Student Section President.
- BioMedical Engineering Society (BMES), Member, Faculty Advisor for FGCU Student Section
- American Society of Engineering Education (ASEE), Member
- American Academy of Orthotists and Prosthetists (AAOP), Member

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Journal Articles & Peer Reviewed Full Length Conference Proceedings

[1] **D. Lura**, M. Wernke, S. Carey, J. Kahle, R. Miro, and M.J. Highsmith. Crossover study of amputee stair ascent and descent biomechanics usingGenium and C-Leg prostheses with comparison to non-amputee control. *Gait & Posture*. 2017, 58: 103-107

[1] M. J. Highsmith, J. Kahle, R. Miro, M. Cress, **D. Lura**, S. Quillen, S. Carey, R. Dubey, and L. Mengelkoch. Functional performance differences between the Genium and C-Leg prosthetic knees and intact knees. *Journal of Rehabilitation Research & Development (JRRD)* 2016;536:753.

[2] M. J. Highsmith, J. Kahle, M. Wernke, S. Carey, R. Miro, **D. Lura**, and B. Sutton. Effects of the Genium Knee System on Functional Level, Stair Ambulation, Perceptive and Economic Outcomes In Transfemoral Amputees. *Technology & Innovation* 2016;182-3:139.

[3] J. Keime, K. Ladia, J. Shah, and D. Lura, Comparative Gait Rehabilitation with Virtual Reality Headset, *Aquila - The FGCU Student Research Journal*, 2016.

[4] M. J. Highsmith, T. Klenow, J. Kahle, M. Wernke, S. Carey, R. Miro, and **D. Lura**. Effects of the Genium Microprocessor Knee System on Knee Moment Symmetry During Hill Walking. *Technology & Innovation* 2016;182-3:151.

[5] M. J. Highsmith, **D. Lura**, S. Carey, L. Mengelkoch, S. Kim, S. Quillen, J. Kahle, and R. Miro. Correlations between residual limb length and joint moments during sitting and standing movements in transfemoral amputees. *Prosthetics and Orthotics International* 2016;404:522-7.

[6] M. Houston-Hicks, **D. Lura**, and M. J. Highsmith. Play Hands Protective Gloves: Technical Note on Design and Concept. *Technology & Innovation* 2016;182-3:207.

[7] M. J. Highsmith, J. Kahle, R. Miro, **D. Lura**, S. Carey, M. Wernke, S. Kim, and S. Quillen. Differences in Military Obstacle Course Performance Between Three Energy-Storing and Shock-Adapting Prosthetic Feet in High-Functioning Transtibial Amputees: A Double-Blind, Randomized Control Trial. *Military Medicine, International Journal of the AMSUS* 2016 ;181(S4):45-54.

[8] **D. Lura**, M. Wernke, S. Carey, J. Kahle, R. Miro, and M.J. Highsmith. Differences in knee flexion between the Genium and C-Leg microprocessor knees while walking on level ground and ramps. *Clinical Biomechanics*. 2015; 30: 175-81.

[9] S. Carey, **D. Lura**, and M. J. Highsmith. Differences in myoelectric and body-powered upper-limb prostheses: systematic literature review. *Journal of Rehabilitation Research & Development (JRRD), 2*015;523:247-62.

[10] **D. Lura**, A. Badir, and R. O'Neill. Homework Methods in Engineering Mechanics. *ASEE 122nd Annual Conference & Exposition*, Seattle WA 2015, ASEE.

[11] S. Carey, M. Wernke, **D. Lura**, J. Kahle, R. Dubey, and M. J. Highsmith. Golf hand prosthesis performance of transradial amputees. *Prosthetics & Orthotics International,* 2015;393:244-9.

[12] O.L. Castellanos, S.A. Farhadi, and A.D. Suarez, Motion Analysis and Biomechanics of the Side-Foot Soccer Kick, *Aquila - The FGCU Student Research Journal*, 2014. (**student mentored research**)

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Conference Abstracts & Presentations

[1] M. Venglar, H. Shwket, J. Sauerwald, D. Lura. The Effects of Treadmill Gait Training with Virtual Reality for a Person with Chronic Stroke, *Florida Physical Therapy Association Annual Conference,* Sept 27-30, Orlando, FL, 2018

[2] A. Grippo, K. Kirkpatrick. Optimizing Prosthetic Hand. *Biomedical Engineering Society (BMES) Annual Meeting*, Phoenix AZ, 2017.

[3] J. Keime, B. Hays, A. Vazquez, J. Mena, J. Sauerwald, & H. Shwket. Case Study of Custom Virtual Reality System for Post Stroke Rehabilitation. *International Conference on Virtual Rehabilitation*, Montreal Canada, 2017.

[4] K. Ladia, J. Keime, B. Corlew, J. Shah, D. Lura. Comparative Gait Rehabilitation with Virtual Reality Headset. *Biomedical Engineering Society (BMES) Annual Meeting*, Minneapolis MN, 2016.

[5] N.B. Patel, and D.J. Lura, Design of a Self-Paced Motorized Treadmill (SPMT) to Simulate Over Ground Walking, *Biomedical Engineering Society (BMES) Annual Meeting* , Tampa FL, 2015.

[6] J. Keime, K. Ladia, J. Shah, and D. Lura. Real-Time Tracking with Virtual Reality Headset. *Biomedical Engineering Society (BMES) Annual Meeting* , Tampa FL, 2015.

[7] E. De La Rosa, and N. Gamso. Kinematic Effects of 3 Commercially Available Ankle Stabilizing Orthoses. *Biomedical Engineering Society (BMES) Annual Meeting* , Tampa FL, 2015.

[8] D. Lura, J. Khale, M.J. Highsmith, Knee Flexion of the Genium and C-Leg Microprocessor Knees, *American Orthotic & Prosthetic Association World Congress*, Orlando FL, 2013.

University & Mentored Student Research Presentations

[1] R. Greenplate, C. Stevens, A. Grippo. Virtuix Omni Treadmill Gait Analysis. *FGCU Whitaker Center Research Day*, Fall 2017.

[2] A. Perez de Alderete. Thermistor Array for Temperature Mapping of Prosthetic Socket. *FGCU Whitaker Center Research Day*, Fall 2017.

[3] N. Nunez Paz, E. Perez, M. Ramon, A. Delle Monache. Biomechanical Gait Asymmetry Analysis in Patients Post-Stroke. *FGCU Whitaker Center Research Day*, Fall 2017.

[4] S. Johnson, R.L. Knight, C.F. Weber, D. Lura, R.C. Geiger, Biomechanical Analysis of Cancer Cells. *FGCU Whitaker Center Research Day*, Fall 2017.

[5] C.R. Keinath, K.M. Kirkpatrick, S.J. Pellegrino. Biomechanical Analysis of Fatigue State When Performing First Arabesque en Pointe. *FGCU Whitaker Center Research Day*, Fall 2017.

[6] B. Corlew, Immersive Navigation in Virtual Reality, *FGCU Research Day*. Spring 2017.

[7] N. Norberg, S. Biro, and D. Lura. Improved Cell Electroporation Device. *FGCU Research Day*. Spring 2017.

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[8] C. Bayes, A. Grippo, K. Kirkpatrick, T. May, J. Mohanty, W. Saunders. Optimizing Prosthetic Hand. *FGCU Research Day*. Spring 2017.

[9] Maritza Roche, Cassandra Batke, Brian Bradley, Kristin Ladia, and Matthew Wittock. A Kinetic and Kinematic Study of Unweighted Squats, *FGCU Whitaker Center Research Day*, Fall 2016.

[10] A. Grippo, T. May, K. Kirkpatrick, and C. Bayes. Optimizing Prosthetic Hands. *FGCU Whitaker Center Research Day*, Fall 2016.

[11] S.J. Law, A.F. Londono, D. Mantion, and C. Halpin, Biomechanics Analysis of the Effect of Grip Width on Power During the Bench Press in Male Participants *FGCU Whitaker Center Research Day*, Fall 2016.

[12] D. Barnes, and D. Fleck, Biomechanical Analysis of Yoga, *FGCU Whitaker Center Research Day*, Fall 2016.

[13] M. Alters, C. Bowen, B. Corlew, R. Halmich, M. Monaldi, D. Russel, and D. Ryan, Barefoot Versus Shod Running , *FGCU Whitaker Center Research Day*, Fall 2016.

[14] D. Novotny, L. Middaugh, F. Sanchez, S. Thibodeau, J. Witham, T. Rojas, M. Lynch, and E. Visness Comprehensive Study on the Biomechanics of Rowing, *FGCU Whitaker Center Research Day*, Fall 2016.

[15] J. Shah, and S. Pais. Real-Time Tracking with Virtual Reality Headset, *FGCU Research Day*, Spring 2015.

[16] E. De La Rosa, Optimizing Qualisys Calibration Techniques to Yield Well Defined Active Spaces for Virtual Reality Use, *FGCU Research Day*, Spring 2015.

[17] C. Halpin. Utilizing Chemical, Electrical, and Mechanical Stimulation to Promote Skeletal Muscle Growth Skeletal Muscle Growth In-Vitro. *FGCU Whitaker Center Research Day*, Fall 2014.

[18] J.M. Ion, V. Suarez, and D. Lura. Comparison of Pelvic and Knee Kinematics During Overground and Treadmill Walking with Change in Optic Flow, *FGCU Research Day*, Spring 2014.

[19] S.L. Guerra, J.M. Ion, A. G. Strohmeier, and A. M. Webber, Body Weight Estimation, *FGCU Research Day*, Spring 2014.

Funded Grants

[1] “Prosthetic socket performance comparison by interface type: comfort, function, fit, and preference in the transtibial amputee” Primary Award Tampa VA Research and Education Foundation, Inc. USAMRAA (W81XWH-14-OPORP-OPORA) Sub-Contract to FGCU: $22,564.00, 10/01/2015 - 09/30/2017, Principle Investigator (on subcontract grant).

[2] “Development of a Novel Low Cost Virtual Reality System for Gait Rehabilitation” FGCU Office of Research and Graduate Studies (ORGS), 2014 Multi-Disciplinary Research Initiative (MDRI), $14,764.00, 7/1/2014 – 6/30/2015, Principle Investigator