Pawel R. Golyski, BS

PROFILE
I am a biomedical engineer who is passionate about understanding the connection between biomechanics and use of assistive and prosthetic lower limb devices.

CONTACT
Georgia Institute of Technology
North Ave NW Atlanta, GA 30332
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EDUCATION

Georgia Institute of Technology　　　　　　　　　　　　　　　　**Atlanta, GA**
PhD student in BioEngineering, GPA: 4.00　　　　　　　　**August 2017- Present**
- Advised by Dr. Gregory Sawicki

Brown University　　　　　　　　　　　　　　　　　　　　　**Providence, RI**
Bachelors of Science in Biomedical Engineering with Honors, GPA: 3.93　　**September 2011- May 2015**
- Member, Brown Biomedical Engineering Society
- Member, Tau Beta Pi Engineering Honors Society

RESEARCH EXPERIENCE

GEORGIA TECH HUMAN PHYSIOLOGY OF WEARABLE ROBOTICS LAB　　**Atlanta, GA**
Graduate Research Assistant　　　　　　　　　　　　　　**August 2017- Present**
Supporting projects linking muscle mechanics with robot design. Responsibilities include:
- Using computational models to understand implications of a passive hip exoskeleton on balance
- Collecting and analyzing human muscle ultrasound data from the lower limb during exoskeleton use
- Performing reviews of literature and preparing manuscripts for publication

WALTER REED NATIONAL MILITARY MEDICAL CENTER　　　　**Bethesda, MD**
Research Engineer, Henry M. Jackson Foundation (Contractor)　　**November 2015- July 2017**
Supported projects relating to secondary health effects of lower limb amputation and activities of daily living. Responsibilities included:
- Assessing effect of prosthetic foot type on intact limb loading during walking with military loads
- Developing a training application for improving trunk-pelvis control using center of pressure biofeedback
- Exploring and computationally classifying biomechanical aspects of freeform turns
- Assisting with clinical evaluations for patients with pathological gait
- Performing reviews of literature and preparing manuscripts for publication

ABBVIE PHARMACEUTICALS　　　　　　　　　　　　　　　**Worcester, MA**
Antibody-Drug Conjugate Early Discovery Intern　　　　　　**June 2015- August 2015**
Provided project support for research and development projects characterizing antibody internalization, trafficking, and drug activity. Responsibilities included:
- Generating and maintaining transfected adherent and suspended cell lines
- Formulating and executing factorial experiments for quantifying small molecule kinetics
- Developing labelling assays for antibody internalization assessed by AMNIS imaging cell sorter

VETERANS AFFAIRS CENTER FOR NEUROTECHNOLOGY　　　　**Providence, RI**
Gait and Motion Capture Laboratory Research Assistant　　**September 2014 – May 2015**
Served as an assistant for virtual reality and motion capture research projects. Responsibilities included:
- Developing a virtual obstacle course for training individuals with lower limb amputation
- Generating and executing experiments for optimization of virtual obstacle courses
- Developing and testing a novel augmented reality gait training alternative to virtual reality methods
- Collecting, analyzing, and interpreting subject data

VETERANS AFFAIRS CENTER FOR NEUROTECHNOLOGY　　　　**Providence, RI**
Neurorehabilitation Laboratory Research Assistant　　**January 2014 – December 2014**
Served as an assistant for studies of gait biomechanics in Multiple Sclerosis. Responsibilities included:
- Implementing a gait spatiotemporal parameter measurement mat
- Developing a complete optical motion capture workflow and analysis pipeline
- Collecting, analyzing, and interpreting subject data

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NATIONAL INSTITUTES OF HEALTH   **Bethesda, MD**
Biomedical Engineering Summer Intern   **June 2014 – August 2014**
Worked as an orthopedic and rehabilitation research intern in the Center for Performance and Clinical Research at the Walter Reed Amputee Center. Responsibilities included:
- Utilizing novel laser-guided technology to create courses for analysis of freeform walking parameters
- Gathering kinematic and kinetic data on turning, initiation, and termination of gait
- Analyzing clinical significance of outcome measures using custom Visual3D analysis pipelines
- Collecting, analyzing, and interpreting subject data

BROWN UNIVERSITY ADVANCED BABY IMAGING LAB   **Providence, RI**
MRI Laboratory Research Assistant   **June 2013 – November 2013**
Conducted research at MRI laboratory studying myelin development in children. Responsibilities included:
- Exploring the association between *in utero* alcohol/smoking exposure and myelin development using Gompertz curves to model myelination in children's brains
- Collecting whole night EEG data to observe brain wave changes associated with sleep deprivation in children

HHMI-BROWN SUMMER SCHOLARS   **Providence, RI**
Research Student   **June 2012 – August 2012**
Conducted research on *Drosophila* neurodegenerative disease models. Responsibilities included:
- Designing homologous recombination construct for *Drosophila* Charcot-Marie-Tooth model
- Developing and executing a crossing scheme to generate ALS double mutants

OTHER EXPERIENCE

BIOIGNITE   **Atlanta, GA**
Biomechanics Module Instructor   **June 2018 – August 2018**
Through the BioIgnite middle school biomedical engineering summer camp served as one of two biomechanics module instructors. Responsible for physics and muscle function sections and demonstrations.

TAU BETA PI ENGINEERING HONORS SOCIETY   **Providence, RI**
Fluid Mechanics Tutor   **January 2015 – May 2015**
Provided weekly one-on-one undergraduate fluid mechanics instruction.

BIO 1150: STEM CELL ENGINEERING   **Providence, RI**
Student Researcher   **January 2015 – May 2015**
Brown University laboratory course where students isolate and induce rat bone marrow stem cells into osteoblast and adipocyte-like cells. Induction was characterized by lineage specific staining.

ENGN 1230: BIOINSTRUMENTATION DESIGN   **Providence, RI**
Teaching Assistant   **September 2014 – December 2014**
Instructed students in advanced biomedical engineering laboratory course on software and hardware development for measurement and analysis of biological signals. 30+ students, 20 experiments.

BROWN DESIGN WORKSHOP   **Providence, RI**
Fabrication Lab Supervisor   **January 2014 – May 2014**
Taught CAD design and 3D printing/lasercutting for rapid prototyping and student projects.

FIRST Robotics   **Hampton Bays, NY/Providence, RI**
Team Mentor   **January 2012–March 2015**
Provided high school students in Hampton Bays and Providence instruction on coding in LabVIEW for robotics applications.

BROWN FSAE CAR TEAM   **Providence, RI**
Machinist   **September 2011 – January 2013**
Assisted with manufacture of a fully functioning racecar for competition in Detroit.

HHMI VIROLOGY RESEARCH COURSE   **Providence, RI**
Student Researcher   **September 2011 – May 2012**
Piloted year-long bacteriophage isolation, enrichment, characterization, and genomic annotation program.
Chosen to present findings at HHMI Janelia Farm Research Campus symposium.

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EXPERTISE

Software: Microsoft Windows XP/7/8/10, Mac OS X, Vicon Nexus, Qualisys Track Manager, C-Motion Visual3d, Mendeley, MATLAB, Simulink, LabVIEW, SolidWorks, Microsoft Office Suite, Vizard, Unity/C#, Arduino

Equipment/Hardware: Motion capture cameras and associated equipment (Vicon/Qualisys), Force Plates (AMTI), EMG, GAITRite walkway system, laser guided walking system by MITRE Corporation, Oculus Rift Developer Kit. Mills, Lathes, Lasercutters, 3D printers

PUBLICATIONS

Acasio, J.C., Butowicz, C.M., **Golyski, P.R.**, Nussbaum, M.A., Hendershot, B.D., 2018. Associations between trunk postural control in walking and unstable sitting at various levels of task demand. J. Biomech. 75, 181–185. doi:10.1016/j.jbiomech.2018.05.006

Golyski, P.R., Hendershot, B.D., 2018. Trunk and pelvic dynamics during transient turns among individuals with unilateral traumatic lower limb amputation. Hum. Mov. Sci. 58, 41–54. doi:10.1016/j.humov.2018.01.006

Golyski, P.R., Spencer, M.T., Childers, W.L., 2017. The influence of passive hydraulic ankle-feet on decline and level ground walking. American Academy of Orthotists and Prosthetists Critically Appraised Topic.

Golyski, P.R., Bell, E.M., Husson, E.M., Wolf, E.J., Hendershot, B.D., 2017. Modulation of Vertical Ground Reaction Impulse with Real-Time Biofeedback: A Feasibility Study. J. Appl. Biomech. 1–23. doi:10.1123/jab.2017-0004

Golyski, P.R., Hendershot, B.D., 2016. A computational algorithm for classifying step and spin turns using pelvic center of mass trajectory and foot position. J. Biomech. 54, 96–100. doi:10.1016/j.jbiomech.2017.01.023

Pope, W.H., Bowman, C.A., Russell, D.A., Jacobs-Sera, D., Asai, D.J., Cresawn, S.G., Jacobs, W.R., Hendrix, R.W., Lawrence, J.G., Hatfull, G.F., 2015. Whole genome comparison of a large collection of mycobacteriophages reveals a continuum of phage genetic diversity. Elife 4, e06416. doi:10.7554/eLife.06416

PRESENTATIONS

Sawicki, G.S., Abbott, E.M., Beck, O.N., Schroeder, J.N., Punith, L.K., **Golyski, P.R.** Physiology of Wearable Robotics Lab Focus Talk. Podium presentation at the 2018 Dynamic Walking conference, Pensacola, FL, USA.

Golyski, P.R., Sawicki, G.S. Optimal Passive Hip Exoskeleton Stiffness for Improving Balance on a Prosthetic Foot: A Modeling Study. Poster presented at the 2018 Dynamic Walking conference, Pensacola, FL, USA.

Beck, O.N., **Golyski, P.R.**, Sawicki, G.S. Tuning Shoe Stiffness for More Economical Muscle Force Production During Running. Poster presented at the 2018 Dynamic Walking conference, Pensacola, FL, USA.

Golyski, P.R., Schnall, B.L., Hansen, A.H., Koehler-McNicholas, S.R., Dearth, C.L., Hendershot, B.D. Biomechanical Outcomes of Prosthetic Foot Stiffness during Weighted Walking. Poster presented at the 2017 Meeting of the American Society of Biomechanics (ASB), Boulder, CO, USA.

Hendershot, B.D., Butowicz, C.B., Mahon, C.E., Schnall, B.L., **Golyski, P.R.**, Dearth, C.L. Longitudinal Changes in Mediolateral Trunk and Pelvic Motion Among Persons with Lower Limb Amputation during the First Year of Ambulation. Presented at the 2017 Meeting of the American Society of Biomechanics (ASB), Boulder, CO, USA.

Golyski P. Comparison of an Augmented Reality Gait Training System to Existing Virtual Reality Methods. Presented at the Brown University Biomedical Engineering Honors Symposium. April 24, 2015. Brown University, Providence RI, USA

Golyski P, Wolf E. Preliminary Analysis from a Laser Guided System for Observation of Freeform Walking Characteristics. Presented at the NIH Biomedical Engineering Summer Internship Program Research Symposium. August 2, 2014. NIH, Bethesda MD, USA

Golyski P, DeChalus A. Modeling MFN 2 by introducing point mutations in Drosophilia in MARF by HR. Poster presented at the Brown University Summer Research Symposium. July 30, 2012. Brown University, Providence RI, USA

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Ferrazares A, **Golyski P**, et al. Analysis of the novel mycobacteriophage Dante genome suggests a possible evolutionary pathway for the F1 cluster of mycobacteriophages. Poster presented at the 4th Annual SEA-PHAGES Symposium. June 8, 2012. HHMI Janelia Farm Research Campus, Ashburn VA, USA

AWARDS/ ACHIEVEMENTS

- *Magna Cum Laude*
- Outstanding Senior Award in Biomedical Engineering at Brown University
- Eagle Scout