

RYAN ALCANTARA

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EDUCATION

University of Colorado Boulder

Defend in March 2021

PhD candidate in Integrative Physiology – Applied Biomechanics Lab

Advisor: Dr. Alena Grabowski

University of Colorado Boulder

2019

MSc in Integrative Physiology – Applied Biomechanics Lab

Advisor: Dr. Alena Grabowski

Seattle Pacific University

2015

BSc Applied Human Biology, Kinesiology Minor

Advisor: Dr. Cara Wall-Scheffler

RESEARCH EXPERIENCE

Graduate Research Assistant

2017 – Present

Applied Biomechanics Lab, University of Colorado Boulder

Funded by the PAC-12 Student-Athlete Health & Well-Being Grant Program

Research Technician

2016

Footwear Biomechanics Laboratory, Brooks Running

Performed 3D motion capture data collections, developed custom MATLAB scripts for data analysis, reported findings to Footwear R&D

Research Intern

2015

Footwear Biomechanics Laboratory, Brooks Running

Assisted with mechanical footwear testing, subject recruitment, and data processing

Undergraduate Research Assistant

2014

Seattle Pacific University

Investigated the biomechanical and physiological effects of running with a stroller

TEACHING EXPERIENCE

Graduate Teaching Assistant

2017

Human Anatomy Laboratory, University of Colorado Boulder

Undergraduate Teaching Assistant

2014

Introductory Physics I & II, Seattle Pacific University

HONORS & AWARDS

Eyes High Postdoctoral Fellowship, University of Calgary (*awarded, declined*)

2020

Best Presentation – Athletics, International Society of Biomechanics in Sports

2020

IPHY Fellowship Travel Award , University of Colorado Boulder	2019
Diversity Travel Award , American Society of Biomechanics (ASB)	2018
Best Masters Student Poster Presentation , Rocky Mountain ASB Regional Meeting	2018
Graduate Student Travel Grant , University of Colorado Boulder	2018
Graduate Dean's Fellowship , University of Colorado Boulder	2017
Oregon Latino Scholarship , Hispanic Metropolitan Chamber of Commerce	2012
President's Scholar Award , Seattle Pacific University	2011 – 2015

PEER-REVIEWED PUBLICATIONS

- Alcantara R.**, Day E., Hahn M., Grabowski A. Sacral acceleration can predict whole-body kinetics and stride kinematics across running speeds (*in press*).
- Day E., **Alcantara R.**, McGeehan M., Grabowski A., Hahn M. Low-pass filter cutoff frequency affects sacral-mounted inertial measurement unit estimations of peak vertical ground reaction forces and contact time during treadmill running. *Journal of Biomechanics* 119, 110323, (2021).
- Alcantara R.** Prosthetic leg design, force production, and curve sprint performance: A pilot study. *International Society of Biomechanics in Sports Proceedings Archive* 38(1), (2020).
- Alcantara R.**, Beck O., Grabowski A. Added lower limb mass does not affect biomechanical asymmetry but increases metabolic power in runners with a unilateral transtibial amputation. *European Journal of Applied Physiology* 120, 1449-1456, (2020).
- Alcantara R.** Dryft: A Python and MATLAB package to correct drifting ground reaction force signals during treadmill running. *Journal of Open Source Software* 4(44), 1910 <https://doi.org/10.21105/joss.01910> . (2019).
- Alcantara R.**, Trudeau M., Rohr E. Calcaneus range of motion underestimated by markers on running shoe heel. *Gait & Posture* 63: 68-72, (2018).
- Alcantara, R.** & Wall-Scheffler, C. Stroller Running: Energetic and kinematic changes across pushing methods. *PLoS One* 12(7): e0180575, (2017).

CONFERENCE PRESENTATIONS

- Alcantara R.** (2020) Prosthetic Leg Design, Force Production, and Curve Sprint Performance: A Pilot Study*. International Society of Biomechanics in Sports. (virtual presentation)
*Awarded Best Presentation (Topic: Athletics)
- Alcantara R.** & Grabowski A. (2020) Loading Asymmetry Before and After Metatarsal Stress Fracture: A Case Study. American Society of Biomechanics. (virtual presentation)
- Alcantara R.** (2020) Curve Sprinting With a Split-Toe Running Specific Prosthesis: A Pilot Study. American Society of Biomechanics. (virtual presentation)
- Alcantara R.** & Grabowski A. (2020) Curve Sprinting with a Split-Toe Running Specific Prosthesis: A Pilot Study. Rocky Mountain ASB Meeting. (accepted – conference cancelled)
- Alcantara R.**, Day E., Hahn M., Grabowski A. (2019) Sacral Accelerations Predict Whole Body Kinetics and Stride Kinematics During Running. International Society of Biomechanics. (podium)
- Alcantara R.**, Day E., Hahn M., Grabowski A. (2019) Sacral Accelerations Predict Whole Body Kinetics and Stride Kinematics During Running. Rocky Mountain ASB Meeting. (podium)
- Alcantara R.**, Beck O., Grabowski A. (2018) Mass added to a running-specific prosthesis increases metabolic power during running. American Society of Biomechanics. (thematic)
- Alcantara R.**, Beck O., Grabowski A. (2018) Mass added to a running-specific prosthesis increases metabolic power during running*. Rocky Mountain ASB Meeting. (poster)
*Awarded Best Poster Presentation by M.Sc. Student

- Alcantara R.**, Trudeau M., Brüggemann G., Hamill J., Rohr E. (2016) Running Shoe Forefoot Bending Stiffness Affects Calf Muscle EMG. Northwest ASB Meeting. (poster)
- Alcantara R.** & Wall-Scheffler C. (2016) Running With A Stroller: Kinematic and Energetic Changes Across Different Stroller Pushing Techniques. American College of Sports Medicine. (poster)
- Alcantara R.** & Wall-Scheffler C. (2015) Push it, Push it Real Good: The energetic cost of running with a stroller. Murdock College Science Research Program. (poster)
- Alcantara R.** & Wall-Scheffler C. (2015) Push it, Push it Real Good: The energetic cost of running with a stroller. Seattle Pacific University Summer Research Symposium. (podium)

INVITED PRESENTATIONS

- Improving Running Performance and Monitoring Injury Risk with Wearable Devices** *2021*
Stanford University
- Version Control for Researchers Workshop** *2020*
University of Wisconsin-Milwaukee
- Version Control for Researchers Workshop** *2020*
American Society of Biomechanics Annual Meeting
- Panel Member** *2020*
Biology Cornerstone Seminar, Seattle Pacific University
- Panel Member** *2020*
Student Academic Success Center, University of Colorado Boulder
- Using inertial measurement units to predict running kinetics and kinematics** *2019*
LEOMO Inc., Boulder, CO
- Wearable devices estimate biomechanical risk factors for stress fractures** *2019*
Integrative Physiology Department Colloquium, University of Colorado Boulder
- Guest Lecturer** *2018*
Introductory Biomechanics, Colorado School of Mines
- Panel Member** *2018*
Capstone Seminar, George Fox, University
- Guest Lecturer** *2016*
Disciplinary Research and Writing, Seattle Pacific University
- Panel Member** *2016*
Biology Cornerstone Seminar, Seattle Pacific University

MENTORSHIP & OUTREACH

- Mentor** *2019 – Present*
Graduate Student Peer Mentoring Program, University of Colorado Boulder
- Mentor** *2019*
"L2k" Legacy High School STEM Internship Program, Boulder, CO
- Volunteer** *2019*
Colorado Advantage Program, University of Colorado Boulder
- Volunteer Organizer** *2018 – 2019*
National Biomechanics Day, University of Colorado Boulder

Undergraduate Researcher Supervisor

2017 – 2020

Applied Biomechanics Lab, University of Colorado Boulder

ACADEMIC SERVICE

Moderator , Biomch-L Weekly Literature Updates	2021 – Present
Co-Chair , Locomotion Session – <i>American Society of Biomechanics Meeting</i>	2020
Reviewer , British Journal of Sports Medicine	2020
Reviewer , Journal of Open Source Software	2019 – Present
Co-Chair , Running Performance Session – <i>Footwear Biomechanics Symposium</i>	2019 – Present
Co-Chair , PhD Competition Session – <i>American Society of Biomechanics Meeting</i>	2018
Co-Chair , Sports Session – <i>Rocky Mountain ASB Regional Meeting</i>	2018
Member , ASB Student Advisory Committee for Biomechanics Advocacy	2017 – 2018

SPECIALIZED SKILLS

Laboratory:	Vicon Nexus, Motion Analysis Cortex, Visual3D, Novel Pedar, Instron Material Testing, Delsys sEMG, Noraxon sEMG, IMeasureU, Parvo Medics, Oxycon Mobile, Biodex
Computer:	MATLAB, Python (numpy, pandas, tensorflow, keras, scikit-learn), R (ggplot, caret, nlme, dplyr, R shiny), Git, LaTeX, Slurm Workload Manager, Tableau
Analysis:	Mixed-Effects Models, Linear Regression, Recurrent Neural Networks (LSTM), Feed-Forward Neural Networks, Random Forests, Transfer Learning

REFERENCES

Dr. Alena Grabowski – Associate Professor, University of Colorado Boulder
 Dr. Rodger Kram – Associate Professor Emeritus, University of Colorado Boulder

MEDIA & PRESS**Selected Press for *Energetic Cost of Stroller Running*:**[New York Times](#)[Inside Science](#)

Society Magazine (Paris, France), by Emmanuelle Andreani

Personal Interview - SPU etc. Magazine:<https://voices.spu.edu/articles/dream-career-reality-college-etc>