CHASE G. ROCK, M.S.

chasegrock.com
crock@gatech.edu
402.672.0875
1700 Northside Drive, Suite 3507
Atlanta, GA 30318

EDUCATION

2017 – Present **School of Biological Sciences** Georgia Institute of Technology
Ph.D. Applied Physiology
GPA: 3.77/4.0

2015 – 2017 Department of Biomechanics University of Nebraska at Omaha
M.S. Exercise Science, concentration in Biomechanics
GPA: 4.0/4.0

2010 – 2014 College of Arts and Sciences University of Nebraska at Omaha
B.S. Neuroscience, minor degrees in Biology and Chemistry
GPA: 3.618/4.0 GRE: Quantitative – 158 Verbal – 163

RESEARCH

2017 – Present **School of Biological Sciences** **Georgia Institute of Technology**
Ph.D. Student **Advisor: Dr. Young-Hui Chang**

DISSERTATION PROJECT:
From Legs to Mind: Motor and Cognitive Adaptation to Reduced Gravity

2015 – 2017 Department of Biomechanics University of Nebraska at Omaha
Graduate Student Worker Advisor: Dr. Kota Takahashi

THESIS PROJECT:
Interaction Between Step-to-Step Variability and Metabolic Cost of Transport During Human Walking

2014 – 2015 Biomechanics Research Building University of Nebraska at Omaha
Undergraduate Research Assistant Advisor: Dr. Shane Wurdeman

PUBLICATIONS

Rock CG, Wurdeman SR, Stergiou N, & Takahashi KZ. *Stride-to-stride fluctuations in transtibial amputees are not affected by changes in push-off mechanics from using different prostheses.* PLoS One 13, (2018)

Rock CG, Marmelat V, Yentes J, Siu KC, & Takahashi KZ. *Interaction Between Step-to-Step Variability and Metabolic Cost of Transport During Human Walking.* Journal of Experimental Biology 221, (2018)

PRESENTATIONS

Rock CG, Luo A, Yun K & Chang YH. *Neuromuscular Adaptation to Jumping in Simulated Hypogravity.* **Poster**
Career, Research & Innovation Development Conference, Georgia Tech. ATL, GA. 2020

Rock CG, Trejo LH, Sawicki GS, & Chang YH. *How to Hop on Mars: Neuromechanical Model Suggests Low Frequency is Optimal.* **Poster**
Joint Meeting of the International and American Societies of Biomechanics. Calgary, AB, CAN. 2019

Rock CG & Chang YH. *Effects off Reduced Gravity Training on Motor and Cognitive Systems.* **Poster**
ASB – Neuromechanics Satellite Meeting, University of Calgary. Calgary, AB, CAN. 2019

Rock CG. *Can the effects of gravity-specific adaptation transfer between motor systems?* **Podium**
Applied Physiology Brownbag Series, Georgia Institute of Technology. ATL, GA. 2019

Rock CG, Trejo LH, Sawicki GS, & Chang YH. *How to Run on Mars? Neuromechanical Suggests Slow is Optimal.* **Poster**
Career, Research & Innovation Development Conference, Georgia Tech. ATL, GA. 2019

Rock CG, Chang YH. *Head, Shoulders, Knees, and Toes: A Body-wide Representation of Gravity.* **Podium**
Southeast Regional Meeting of the Society for Integrative & Comparative Biology, Clemson, SC. 2018

Rock CG, Chang YH. *Head, Shoulders, Knees, and Toes: A Body-wide Representation of Gravity.* **Podium**
August 2018 Meeting of ATL Neuromechanics, ATL, GA. 2018

Rock CG, Marmelat V, Yentes J, & Takahashi KZ. *Relationship Between Step-to-Step Variability and Metabolic Cost of Transport in Human Walking.* **Podium**
2nd Annual Human Movement Variability Conference, Omaha, NE. 2017

Rock CG, Marmelat V, Yentes J, & Takahashi KZ. *Relationship Between Step-to-Step Variability and Metabolic Cost of Transport in Human Walking.* **Podium**
7th Annual Meeting of the Rocky Mountain American Society of Biomechanics, Estes Park, CO. 2017

Rock CG, Marmelat V, Yentes J, & Takahashi KZ. *Efficient Variability: Linking Fractal Walking Patterns with Metabolic Energy Savings.* **Podium**
Nebraska Academy of Sciences Annual Meeting, University of Nebraska at Lincoln, Lincoln, NE. 2017

Rock CG, Marmelat V, Yentes J, & Takahashi KZ. *Efficient Variability: Linking Fractal Walking Patterns with Metabolic Energy Savings.* **Podium**
Research and Creative Activity Fair, University of Nebraska at Omaha, Omaha, NE. 2017

Rock CG, Marmelat V, Yentes J, & Takahashi KZ. *Relationship Between Metabolic Cost of Transport and Stride-to-Stride Variability.* **Poster**
Symposium on Biomechanics, University of Nebraska at Omaha, Omaha, NE. 2016

Rock CG, Wurdeman SR, Stergiou N, & Takahashi KZ. *Relationship Between Prosthetic Push-Off Work And Stride-To-Stride Fluctuations In Transtibial Prosthesis Users.* **Poster**
40th Annual Meeting of the American Society of Biomechanics, Raleigh, NC. 2016

Rock CG, Marmelat V, Yentes J, & Takahashi KZ. *Metabolic Cost of Transport and the Persistence of Stride-to-Stride Fluctuations in Human Walking.* **Poster**
1st Annual Human Movement Variability Conference, Omaha, NE. 2016

Rock CG, Marmelat V, Yentes J, & Takahashi KZ. *Metabolic Cost of Transport and the Persistence of Stride-to-Stride Fluctuations in Human Walking.* **Poster**
6th Annual Meeting of the Rocky Mountain American Society of Biomechanics, Estes Park, CO. 2016

GRANTS & FELLOWSHIPS

AWARDED

President's Fellowship Georgia Institute of Technology
Aim: To pursue doctoral research in the Comparative Neuromechanics Laboratory at the Georgia Institute of Technology.
Funding: $5,500/year for up to 4 years, starting August 2017

Graduate Research Fellowship Program National Science Foundation
Aim: To pursue research in the fields of biomechanics, neuroscience, and physiology, via the evaluation of energy expenditure and step patterns of human walking.
Funding: $138,000 from August 2017 – August 2022

NASA Nebraska Space Grant Fellowship NASA Nebraska Space Grant Consortium
Aim: To investigate the relationship between step-to-step variability and metabolic cost of transport during human walking, with implications for rehabilitation of those returning from spaceflight.
Funding: $4,000 from August 2016 – May 2017

Graduate Research and Creative Activity award University of Nebraska at Omaha
Aim: To determine the correlational and causal relationship between human walking and metabolic cost of transport.
Funding: $5,000 from June 2016 – May 2017

NOT AWARDED

ARCS Scholar Award Achievement Rewards for College Scientists Foundation
Aim: To determine the extent of adaptation to simulated reduced gravity by testing after-effects in human cognitive and motor systems.
Funding: $8,000 - $10,000 from August 2018 – August 2019

Graduate Research Fellowship Program National Science Foundation
Aim: To pursue research in the fields of biomechanics, neuroscience, and physiology, via the evaluation of energy expenditure and step patterns of human walking.
Funding: $138,000 from August 2016 – August 2021

AWARDS, HONORS, & MEMBERSHIPS

2019	ASB Student Travel Grant, American Society of Biomechanics
2019	CRIDC Poster Competition - Travel Grant Winner, Georgia Institute of Technology
2016	Delsys 2016 Student Travel Grant, Delsys, Inc.
2016 – Present	Member of American Society of Biomechanics
2014	Magna Cum Laude Graduate, University of Nebraska at Omaha
2013 – Present	Member of Nu Rho Psi, National Honor Society in Neuroscience
2010 – 2014	Regents Scholar, University of Nebraska at Omaha

TEACHING EXPERIENCE

Fall 2019	Teaching Assistant, APPH-4200 – Kinesiology , Georgia Institute of Technology
Summer 2019	Instructor, GT-1000 Freshman Seminar, Georgia Institute of Technology
Spring 2019	Associate Certificate, Center for the Integration of Research, Teaching, and Learning
2018 – 2019	Facilitator, APPH-6216 – Rehabilitation Research, Georgia Institute of Technology
Fall 2018	Guest Lecturer, APPH-4200 – Kinesiology, Georgia Institute of Technology

UNDERGRADUATE STUDENT MENTEES

Spring 2020 – Present	Dhruv Modi	Major: Biomedical Engineering
Spring 2019 – Present	Angela Luo	Major: Neuroscience
Spring 2017 – Fall 2017	TeSean Wooden	Majors: Biomechanics and Exercise Science
Spring 2017 – Fall 2017	Aaron Robinson	Major: Physical Education, conc. in Exercise Science
Summer 2016	Emily Newton	Major: Neuroscience
Fall 2015 – Fall 2017	Angel Gonzalez	Major: Physical Education, conc. in Exercise Science

SERVICE ACTIVITIES

2019 – present	**Reviewer,** Prosthetics and Orthotics International
2019	**Comparative Neuromechanics Workshop leader,** CEISMC Summer Peaks, Georgia Institute of Technology
2019	**Applied Physiology Outreach Presenter,** Atlanta Science Festival, Exploration Expo
2018 – present	Application Reviewer for PURA (President's Undergraduate Research Award), Georgia Institute of Technology
2018	**Applied Physiology Outreach Presenter,** Institute for Robotics and Intelligent Machines Research Showcase, Georgia Institute of Technology
2018	**Applied Physiology Outreach Presenter,** Graduate Student Research Symposium, Department of Biological Sciences, Georgia Institute of Technology
2017 – present	**Secretary,** PAPER (Promoting Applied Physiology Education and Research)
2016	**Biomechanics Booth Host,** Mid-America Council Jubilee, Boy Scouts of America, Mahoney State Park, Ashland, NE
2016	**Biomechanics Booth Host,** UNO Lights On Event, Sapp Fieldhouse, University of Nebraska at Omaha
2016	**Biomechanics Instructor,** Girls, Inc. Summer Camp, Biomechanics Research Building, University of Nebraska at Omaha
2016	**Biomechanics Booth Host,** Nebraska Science Festival, Strategic Air Command and Aerospace Museum, Ashland, NE
2016	**Biomechanics Instructor,** National Biomechanics Day, Omaha North High Magnet School, Omaha, NE