

# KRISTEN GELENITIS, PH.D.

## RESEARCH SCIENTIST

### CONTACT

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### SKILLS

#### BIOMECHANICAL ANALYSES

Muscle forces  
Motion capture  
Accelerometers

#### PHYSIOLOGICAL ANALYSES

EMG, ECG  
Respiration  
NIRS oxygenation  
Metabolics

#### COMPUTATIONAL

Matlab  
Simulink  
Excel  
Python  
Unity

#### INTERPERSONAL

Multidisciplinary team member  
  
Clear communicator  
  
Strong collaborator and mentor

### INVOLVEMENT

#### DIVISION I VOLLEYBALL

Four year letter earner  
Patriot League academic honors

#### 2020 CYBATHLON - TEAM CLEVELAND

Bronze medalists - FES bike event

#### VOLUNTEER WORK

Challenge America: Makers for Veterans  
RePlay for Kids  
USA Paralympic Sailing Coach's Aide

#### TAU BETA PI

Engineering Honor's Society

#### SOCIAL JUSTICE RESIDENTIAL COLLEGE

### PROFILE

Dedicated biomedical engineer with extensive experience in clinical research settings. Passionate about exploring the intersection between technology and human performance. Proven ability to spearhead successful projects with meaningful real-world impact. Hardworking, resourceful, and excited to tackle new questions.

### EXPERIENCE

#### BIOMEDICAL ENGINEER

##### Department of Veterans Affairs | Cleveland, OH | 2021 - Present

Leading human subjects research study to optimize exercise after paralysis by:

- Augmenting effort sense via custom immersive virtual reality exercise games
- Addressing cardiovascular and respiratory response abnormalities with ventilatory training, heart rate and blood pressure manipulation
- Connecting and motivating stimulated-exercise users worldwide through a home-based digital training initiative

Serving as IRB/regulatory study coordinator for self-designed protocol

#### GRADUATE RESEARCH ASSISTANT

##### Advanced Platform Technology Center | Cleveland, OH | 2016 - 2021

Lead pre-clinical and clinical investigations of neural stimulation induced muscular fatigue and prevention strategies

- Collaborated with clinicians, physical therapists, engineers, and regulators
- Managed and mentored undergraduate students

Developed custom algorithms to efficiently collect and analyze functional and physiological data

Improved exercise outputs by 12% for participants with paralysis using novel, self-designed stimulation models

#### UNDERGRADUATE RESEARCH ASSISTANT

##### Sports Performance Physical Therapy | Edison, NJ | Summer 2015

Shadowed licensed PTs, quantitatively tracked patient progress

### EDUCATION

#### DOCTOR OF PHILOSOPHY, BIOMEDICAL ENGINEERING

##### Case Western Reserve University | 2016 - 2021

Two-time NIH Training Grant recipient:

- Musculoskeletal Research (2019-2021)
- Integrated Engineering and Rehabilitation (2016-2018)

Finalist: Richard A. Zdanis Research Award

#### BACHELOR OF SCIENCE, BIOMEDICAL ENGINEERING

##### Bucknell University | 2012 - 2016

Minor: Biochemistry, Pre-medicine

W.K. Kellogg Foundation Scholarship for Outstanding Women in Medical Technology

## PUBLICATIONS

**Gelenitis, K**, Foglyano, K, Lombardo, L, Triolo, RJ. Selective neural stimulation methods improve cycling exercise performance after spinal cord injury: a case series, *Journal of NeuroEngineering and Rehabilitation* 18 (1): 1-14.

**Gelenitis, K**, Freeberg, M, Triolo, RJ (2020). Sum of phase-shifted sinusoids stimulation prolongs paralyzed muscle output, *Journal of NeuroEngineering and Rehabilitation* 17 (1): 1-7

**Gelenitis, K**, Sanner, B, Triolo, RJ, Tyler DJ (2019). Selective Nerve Cuff Stimulation Strategies for Prolonging Muscle Output. *IEEE Trans. Biomed. Eng.* 67 (5): 1397-1408

## PRESENTATIONS

**Advancements in Neural Stimulation-Induced Exercise for People with Paralysis**, invited platform presentation, Orthopedic Rehabilitation Association: Breakthroughs in Rehab, October 2021, Cleveland OH

**Prolonging Moment Output after Spinal Cord Injury with Feedback Controlled Neural Stimulation Paradigms**, poster presentation, IEEE NER Conference, March 2019, San Francisco CA.

**Feedback Controlled Advanced Stimulation Paradigms Prolong Moment Output with Neural Stimulation after Spinal Cord Injury**, poster presentation, BMES Conference, October 2018, Atlanta GA.

**Examining C-FINE Selectivity and Motor Unit Fatigue Properties for Optimization of Moment-Prolonging Advanced Stimulation Paradigms**, poster presentation, Neural Interfaces Conference, June 2018, Minneapolis MN.

**Exploiting the Selectivity of Multi-Contact Peripheral Nerve Electrodes to Prolong Standing Times with Neural Stimulation after Spinal Cord Injury**, platform presentation, BMES Conference, October 2017, Phoenix AZ.