

# Gavin R. Philips

Postdoctoral Fellow

Department of Radiology and Radiological Science

Johns Hopkins University School of Medicine

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## Education

<i>University of Florida</i>	Ph.D., Electrical and Computer Engineering <i>Functional Connectivity Based Biomarkers for Evaluation and Guidance of BCI-Enabled Post-Stroke Motor Recovery</i>	2015
<i>University of Wyoming</i>	M.S., Electrical Engineering <i>Expanding Smart Wheelchair Technology for Users with Severe Disabilities</i>	2008
<i>University of Wyoming</i>	B.S., Computer Engineering and University Honors Program	2006

## Academic Appointments

- Postdoctoral Fellow 2016-present  
Institute for Cell Engineering, Department of Radiology and Radiological Science  
Johns Hopkins University School of Medicine
- Research Assistant 2012-2015  
Brain Rehabilitation Research Center of Excellence  
North Florida/South Georgia Veterans Affairs Medical Center
- Graduate Research Assistant 2011-2015  
Computational NeuroEngineering Lab, Department of Electrical and Computer Engineering  
University of Florida
- Professional Research Assistant 2009-2011  
Assistive Technology Partners, Department of Physical Medicine and Rehabilitation  
University of Colorado Denver
- Student Assistant III 2008-2009  
Assistive Technology Partners, Department of Physical Medicine and Rehabilitation  
University of Colorado Denver
- Graduate Research Assistant 2006-2008  
Department of Electrical and Computer Engineering  
University of Wyoming

## Teaching Record

### Courses (Teaching Assistant)

- EEL-3003: Elements of Electrical Engineering, University of Florida. 2012
- EEL-3112: Circuits 2 (weekly recitation), University of Florida. 2011
- EE-4590/5590: Real Time Embedded Systems Lab, University of Wyoming. 2007
- EE-4390: Microprocessors Lab, University of Wyoming. 2006
- ES-1000: Orientation to Engineering Study, University of Wyoming. 2003

## **Mentoring**

- Undergraduate Students:
  - Benjamin Schwaller, Electrical and Computer Engineering, University of Florida
  - Dale Anthony Davis, Electrical and Computer Engineering, University of Florida

## **Guest Lectures**

- “Controlling the World with Your Mind: Assistive Technology and Brain-Computer Interfaces,” HEAD Talks series, Department of Neurology, Johns Hopkins University. 2018
- “Electronic Aids to Daily Living,” Recurring guest lecture, Graduate School of Professional Psychology, University of Denver. 2009
- “Electronic Aids to Daily Living,” Guest lecture, CLSC 6281, Department of Physical Medicine and Rehabilitation, University of Colorado Denver. 2009
- “AbleGames,” Guest lecture, ATIA 2009 Chicago. 2009

## **Grants and Fellowships**

- University of Florida Graduate School Fellowship Award. 2011-2015
- Honorable Mention, National Science Foundation Graduate Research Fellowship. 2006
- National Science Foundation EPSCoR Undergraduate Research Grant (three terms). 2004-2005

## **Honors and Awards**

- “Golden Hairball” Award for Most Innovative Research, 20<sup>th</sup> Annual Johns Hopkins University Division of Magnetic Resonance Research Retreat. 2017
- Second Place, 45<sup>th</sup> Rocky Mountain Bioengineering Symposium Student Paper Competition. 2008
- Best Team Project, University of Wyoming Department of Electrical and Computer Engineering Senior Design Competition. 2006
- Inducted into Tau Beta Pi Engineering Honor Society. 2004
- First Place, University of Wyoming Freshman Engineering Design Challenge. 2001
- National Merit Scholarship. 2001

## **Committee and Service Responsibilities**

- Peer Reviewer:
  - Journal of NeuroEngineering and Rehabilitation
  - IEEE Transactions on Neural Systems and Rehabilitation Engineering
  - IEEE Transactions on Computational Intelligence and AI in Games
- Ablegames Technology Coordinator, Assistive Technology Partners, Department of Physical Medicine and Rehabilitation, University of Colorado Denver. 2009-2011
- STEMpalooza Interactive Demo Coordinator, Assistive Technology Partners, Department of Physical Medicine and Rehabilitation, University of Colorado Denver. 2008-2011
- Orientation Leader, University of Wyoming. 2005
- Teaching Assistant, University of Wyoming Engineering Summer Program for high school students. 2004

## Licensure and Board Certification

- Registered Engineer-In-Training, Wyoming State Board of Registration for Professional Engineers and Professional Land Surveyors. 2006

## Additional Training

- NCAN Inaugural Summer Course, Jonathan Wolpaw, National Center for Adaptive Neurotechnologies, Wadsworth Center, New York State Department of Health. 2016
- Wheelchair Seating for Postural Control and Function, Kelly Waugh, Assistive Technology Partners, Department of Physical Medicine and Rehabilitation, University of Colorado Denver. 2009
- Advanced Assistive Technology Training Program, Assistive Technology Partners, Department of Physical Medicine and Rehabilitation, University of Colorado Denver. 2008
- CLSC 6281 Assistive Technology: Engineering and Biotechnology: Principles & Emerging Technologies, Greg McGrew, Assistive Technology Partners, Department of Physical Medicine and Rehabilitation, University of Colorado Denver. 2008

## Publications

### Papers

1. **G. R. Philips**, B. Gleich, G. A. Paredes-Juarez, A. Antonelli, M. Magnani, J. W. M. Bulte, "Magnetic Manipulation of Blood Conductivity with SPIO-Loaded Erythrocytes," (in preparation).
2. **G. R. Philips**, J. J. Daly, and J. C. Principe, "Topographical Measures of Functional Connectivity as Biomarkers for Post-Stroke Motor Recovery," *Journal of NeuroEngineering and Rehabilitation*, 14:67, Jul. 2017.
3. **G. R. Philips**, M. Kh. Hazrati, J. J. Daly, and J. C. Principe, "Addressing Low Frequency Movement Artifacts in EEG Signals Recorded During Center-Out Reaching Tasks," *IEEE Intl. Conf. on Engineering in Medicine and Biology*, Aug. 2014, pp. 6497-6500.
4. C. A. Loza, **G. R. Philips**, M. Kh. Hazrati, J. J. Daly, and J. C. Principe, "Classification of Hand Movement Direction Based on EEG High-Gamma Activity," *IEEE Intl. Conf. on Engineering in Medicine and Biology*, Aug. 2014, pp. 6509-6512.
5. **G. R. Philips**, C. H. G. Wright, and S. F. Barrett, "Expanding Smart Wheelchair Technology for Users with Severe Disabilities," *ISA Biomedical Sciences Instrumentation*, 44, Apr. 2008, pp. 47-52.
6. **G. R. Philips**, A. A. Catellier, S. F. Barrett, and C. H. G. Wright, "Electrooculogram Wheelchair Control," *ISA Biomedical Sciences Instrumentation*, 43, Apr. 2007, pp. 164-169.

### Other Works

1. **G. R. Philips**, B. Gleich, A. Antonelli, M. Magnani, J. W. M. Bulte, "Virtual Brain Electrode (VIBE) for Imaging Neuronal Activity," poster presented at the 3<sup>rd</sup> Annual BRAIN Initiative Investigators Meeting, Bethesda, MD, 2016.
2. **G. R. Philips**, J. J. Daly, and J. C. Principe, "Quantification of Functional Connectivity using Topographical Volume for Brain-Computer Interface Enabled Stroke Rehabilitation," poster

presented at the 2<sup>nd</sup> international conference on Real-time Functional Imaging and Neurofeedback, Gainesville, FL, 2015.

3. **G. R. Philips**, "How to Program the Flash Memory of a Minidragon+ (9s12dp256 Based Evaluation Board)," *University of Wyoming Technical Manual*, 2007.