Gavin R. Philips

Postdoctoral Fellow
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Education

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

Academic Appointments

- Postdoctoral Fellow 2018-present
  Assistive Technology Partners, Department of Bioengineering
  University of Colorado Denver | Anschutz Medical Campus
- Postdoctoral Fellow 2016-2018
  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 (Primary Instructor)

- BIOE 5035: Mechatronics and Embedded Systems, University of Colorado Denver | Anschutz Medical Campus. 2019

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, 20th Annual Johns Hopkins University Division of Magnetic Resonance Research Retreat. 2017
- Second Place, 45th 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:
    - Neurorehabilitation and Neural Repair
    - 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
- STEMapalooza 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

- BIOE 5420 Rehabilitation and Assistive Technology, Cathy Bodine, Department of Bioengineering, University of Colorado Denver | Anschutz Medical Campus. 2018
- 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 Superparamagnetic Iron Oxide-Loaded Erythrocytes," *ACS Applied Materials & Interfaces*, 11, Mar. 2019, pp. 11194-11201.
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, G. A. Paredes-Juarez, A. Antonelli, M. Magnani, J. W. M. Bulte, "Virtual Brain Electrode (VIBE): Selective Magnetic Manipulation of Blood Conductivity," *proceedings of the 9th International Workshop on Magnetic Particle Imaging*, New York, NY, Mar. 2019.
2. **G. R. Philips**, B. Gleich, G.A. Paredes-Juarez, A. Antonelli, M. Magnani, J. W. M. Bulte, "Virtual Brain Electrode (VIBE) for Imaging Neuronal Activity," poster presented at the 4th Annual BRAIN Initiative Investigators Meeting, Bethesda, MD, Apr. 2018.
3. **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 3rd Annual BRAIN Initiative Investigators Meeting, Bethesda, MD, Dec. 2016.
4. **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 2nd international conference on Real-time Functional Imaging and Neurofeedback, Gainesville, FL, Feb. 2015.
5. **G. R. Philips**, "How to Program the Flash Memory of a Minidragon+ (9s12dp256 Based Evaluation Board)," *University of Wyoming Technical Manual,* 2007.