Regan R. Lawson

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Curriculum Vitae

Education

Ph.D. **Georgia Institute of Technology** – Applied Physiology — Expected December 2017
Cognitive Motor Control, Dr. Lewis Wheaton, Advisor – GPA: 4.0
Dissertation Focus: Neurobehavioral effects of explicit awareness during motor learning utilizing a novel, individualized serial reaction task measurement protocol

M.A. **University of Colorado Denver** – School of Education — August 1994
Secondary Science Education – GPA: 4.0

B.S. **Boston University** – Biomedical Engineering – GPA: 3.5 — January 1988

Educational/Teaching Experience

- Georgia Institute of Technology, School of Biological Sciences, Atlanta, GA. — February 2017-present
  Curriculum Development for new Introduction to Neuroscience course
  - Integral part of collaborative team involved in curricular development for both lecture and lab components of the introductory course
  - Responsible for developing inquiry-based neuroscience labs to provide students with engaging and rigorous experiences utilizing a variety of neuroscience techniques
  - Assisted in development of the webpage for the new undergraduate neuroscience major
- Duke University, Atlanta, GA, Talent Identification Program (TIP) Instructor — Summer 2015
  - Instructor for Anatomy, Physiology and Medical Ethics summer session at Georgia Tech satellite campus
  - Developed inquiry- and case study-based curriculum for 3-week summer program presented to 8-10th grade students
- Georgia Institute of Technology, Applied Physiology Instructor, Atlanta, GA — Spring 2014
  - Undergraduate Physiology Lab – Conducted & assessed Energy Metabolism and Integration of Systems with Exercise Lab
- S.T.A.R. Mentor, Cherry Creek School District, Englewood, CO — 2012-2013
  - District-level mentor to first year middle and high school teachers to assist in pedagogical development.
- Grandview High School, Aurora, CO — 1998-2012
  - Courses taught: AP Biology, Anatomy & Physiology, Biology (all levels), Physical Science, Student Leadership, Study Skills

- Founding staff member assisting in development of science curriculum
- Staff Development Coordinator, 2004-2012
- Literacy Coach, 2004-2006
- Science Coordinator, 1999-2004
- Responsible for development and implementation of Freshman Seminar course to assist with transition into high school

- Prairie Middle School, Aurora, CO 1992-1997
  - Courses taught: 7th & 8th grade science and math
  - Science Coordinator, 1994-1997

Educational Presentations

- *Authentic Science*. Georgia Institute of Technology, CEISMC @ Georgia Tech STEAM Leadership Conference, Atlanta, GA March 2017
  - Lead presenter for seminar on how to develop and incorporate authentic science activities in the K-12 curriculum for administrators, STEM coordinators and teachers from the Atlanta area.
- *Teaching HS Anatomy & Physiology: Engaging Students While Elevating Performance.* Georgia Institute of Technology, CETL Staff Development Presentation for Clark County School District, Atlanta, GA August 2015
  - Half day, hands-on workshop with high school teachers providing inquiry-based labs and problem-based activities to increase student performance
- *Toolkit for Leaders, Training for PLC Leaders*, National Staff Development Conference Presentation. June 2008
  - Half-day workshop for K-12 administrators providing strategies and organizational tools to successfully implement a professional learning community structure

Research Experience

Georgia Institute of Technology, Applied Physiology, Atlanta, GA 2013 - present

- Graduate Research Assistant; Advisor: Dr. Lewis Wheaton
- Dissertation project: Individualized analysis of neurobehavioral contributions to the development of explicit awareness in sequential motor learning
  - Multi-modal examination of perceptual, motor and neural contributions during the learning of a complex motor task
  - Developed Arduino-based circuit design to provide time-locked analysis of kinematic, eye-tracking, EEG and behavioral measures
- Current Collaborative Project: (T)Racing Eyes and Hearts: An Installation to

Reflect on the Physiology of Empathy
  - Develop Arduino-based prototype for the simultaneous, time-locked collection of galvanic skin response, pulse rate, and respiratory depth representative of emotional engagement while viewing a video clip
  - Provide physiologic interpretation of measurements to assist in the artistic visualization of responses for an art installation
- Additional Collaborations:
  - Motor control and visual fixation in amputee complex arm movements
    - Assistance in protocol development for kinematic and eye tracking data collection and analysis
  - Neurobehavioral effects of haptic stimulation while using a fictive amputee device
    - Assist in the analysis of kinematic and neural data
  - Effect of dehydration on motor planning and executive function
    - Assist in the protocol development and implantation of an event-related EEG data collection paradigm
    - Assist in the analysis of neural data
  - Interhemispheric transfer of motor skill learning in prosthetic motor control: the role of hand dominance
    - Assistance in protocol development for kinematic and neural data collection during a motor learning study utilizing intact subjects wearing a fictive amputee model system (FAMS)
    - Assist in the analysis of kinematic and neural data
  - Effect of exercise intensity on effort and motivation
    - Assistance in protocol development monitoring neural activity during aerobic bouts of exercise utilizing a swim ergometer
- Previous Project: Influence of perspective of action observation on motor outcomes in naïve prosthesis users
  - Examination of variability in joint movements through goniometer measurement
- Utilization of MATLAB, EEGLAB, Python, Arduino and R stats to collect, compile, filter and analyze eye-tracking, kinematic and neural results

University of Colorado Health Sciences Center, Department of Physiology and Biophysics, Denver, CO — Summer 2008

- Research Assistant; Advisor: Dr. Celia Sladek
- Project: Localization of neurokinin 3 receptors in supraoptic vasopressin and oxytocin neurons
  - Dissected and fixated rat hypothalamic explants
  - Performed radioimmunoassay to identify location of NK3 receptors under varying hydration conditions

Grants/Awards/Honors

- Improving Teacher Quality State Grant 2017-2018
- GVU / IPaT Research & Engagement Grant 2016-2017
- Ruth L. Kirschstein NRSA NIH T32 Institutional Training Grant 2013-2016
- Georgia Institute of Technology President's Fellowship 2013-2017
- Jared Polis Foundation Technology Grant, "Utilizing iClickers to Enhance Student Understanding in AP Biology" 2010
- American Physiology Society Research Teacher Fellowship 2008-2009
- MIT Science and Engineering Program for Teachers 2005
- Aurora Community College, NSF Grant, "A Community College-Led Partnership to Develop High School Biotechnology Education" 2005
- Cherry Creek School Foundation Grant, "Utilizing Technology to Increase Critical Thinking in Science Experiments" 2003
- Colorado Teacher of the Year, Semi-Finalist 1999

Publications

- **Lawson, R.**, Gayle, J., Wheaton, L. *Novel Behavioral Indicator of Explicit Awareness Reveals Temporal Course of Frontoparietal Neural Network Facilitation During Motor Learning*, PLOS ONE, Accepted March 2017. Accepted March 2017
- Lawson, D., Cusack, W., **Lawson, R.**, Hardy, A., Kistenberg, R., Wheaton, L. *Influence of perspective of action observation training on residual limb control in naïve prosthesis usage*, Journal of Motor Behavior, J Mot Behav. 2016 Sep-Oct;48(5):446-54. September 2016

Manuscripts in Preparation

- **Lawson, R.**, Johnson, J., Wheaton, L. *Discovery-based motor learning affords neural facilitation enhancing generalization to a novel motor task.* In preparation
- Levinson, L., Mosley, S., **Lawson, R.**, Topping, K., Wheaton, L. *The effects of video training in fictive amputees during an action observation task: a kinematic and gaze path analysis.* In preparation

Poster Presentations/Demonstrations

- Levinson, L., Mosley, S., **Lawson, R.**, Topping, K., Wheaton, L. *The effects of video training in fictive amputees during an action observation task: a kinematic and gaze path analysis.* MSPO Capstone Presentation, Georgia Tech, Atlanta, GA April 2017

- **Lawson, R.**, Laksmi, U., Dalvi, S., JafarNaimi, N., Pollock, A., Wheaton, L. *(T)racing Eyes and Hearts: An Art Installation*. Georgia Tech GVU Demo Day, Atlanta, GA — April 2017
- **Lawson, R.**, Gayle, J., Wheaton, L. *Neurobehavioral validation of an individualized indicator for presence of incidentally developed explicit awareness in motor learning*. Poster Presentation
    - CABI Callosum Conference, Atlanta, GA — April 2017
    - Society for Neuroscience, San Diego, CA — Nov 2016
    - American Society for Neurorehabilitation, San Diego, CA — Nov 2016
    - School of Biological Sciences Retreat, Atlanta, GA — August 2016
- **Lawson, R.**, Laksmi, U., Dalvi, S., JafarNaimi, N., Pollock, A., Wheaton, L. *(T)racing Eyes and Hearts: An Art Installation*. Digital Media ArtWork, Georgia Tech ArtCrawl — March 2017
- Medina, T., Kelly, S., Nogi, A., Vangundy, A., Varnum, J., **Lawson, R.**, Wheaton, L., *Analysis of Interhemispheric transfer comparing dominant and non-dominant trained individuals with a simulated prosthetic device*. Louis Stokes Alliance for Minority Participation Conference, Savannah, GA. — February 2017
- Johnson, J., **Lawson, R.**, Wheaton, L. *Neural and kinematic effects of increased reliance on visual feedback in prosthesis users*. Society for Neuroscience, San Diego, CA — November 2016
- Gayle, J., **Lawson, R.**, Wheaton, L. *Neural validation of incidental explicit awareness in a motor learning task*. Center for Engineering, Education and Diversity Presentation, Atlanta, GA — August 2016
- Galster, M., Petrunich, B., **Lawson, R.**, Kistenberg, R., Wheaton, L. *Motor control and visual fixation in amputee complex arm movements*. MSPO Capstone Presentation, Georgia Tech, Atlanta, GA — April 2016
- Kelly, S., Nogi, A., Vangundy, A., Varnum, J., **Lawson, R.**, Wheaton, L., *Analysis of Interhemispheric transfer comparing dominant and non-dominant trained individuals with a simulated prosthetic device*. Emory University Physical Therapy Capstone Presentation, Atlanta, GA. — April 2016
- **Lawson, R.**, Wheaton, L. *Identification of an individualized behavioral indicator for presence of explicit awareness in sequential motor learning*. Poster Presentation, Atlanta Society of Neuroscience. — April 2016
- Lawson, D., Cusack, W., **Lawson, R.**, Hardy, A., Kistenberg, R., Wheaton, L., *Influence of perspective of action observation training on motor outcomes in naïve prosthesis usage.* Society for Neural Control of Movement. — April 2015
- Lawson, D., Cusack, W., **Lawson, R.**, Hardy, A., Kistenberg, R., Wheaton, L., *Influence of visual perspective on training differences in naïve mock-prosthesis users*. MSPO Capstone Presentation, Atlanta, GA — April 2015
- **Lawson, R.**, Sladek, C., *Molecular Evidence for multiple purinergic P2X receptor subtypes in supraoptic nucleus*. Poster Presentation, Experimental Biology Conference. — March 2009

Additional Work Experience

- Educational Editor, Springer Publishing, New York 2014-present
    - *Laparoscopic Colectomy: A Step-by-Step Guide.* Work in Progress
    - Provided educational editing assistance to ensure pedagogical verbiage and layout for a reference surgical textbook
- Private Tutor, Atlanta, GA 2013-present
    - Tutor middle and high school students in math, science, and ACT preparation

Affiliations/Memberships

- American Society for Neurorehabilitation 2016-present
- Society for Neuroscience 2014-present
- American College of Sports Medicine 2014-present
- American Physiology Society 2012-present
- National Science Teachers Association 1992-present

Community/Professional Service

- Race and Racism in Contemporary Biomedicine 2015-present
    - Member of working group consisting of faculty and students from Georgia Tech, Emory, and Spelman participating in interdisciplinary conversations and research around race and racism in biomedicine.
- Promoting Applied Physiology Education and Research (PAPER), Vice-President, Georgia Institute of Technology, Atlanta, GA 2013-present
    - Founding member of official organization, 2015
    - Provide interactive educational demonstrations to the public at events such as the Atlanta Science Festival and Paws for A Cause Gymnastics Invitational
    - Organize informal forums for graduate student interactions with departmental guest speakers
    - Organize ST^2 (Students Teaching Students Techniques) seminars in which graduate students practice teaching while providing methodological information to other graduate students
- Atlanta AIDS Walk, Atlanta, GA 2013-present
    - Researched and organized publication of historical/educational banners for 25th annual Atlanta AIDS Run/Walk – October 2015

- Graduate Library Advisory Board, Georgia Institute of Technology, Atlanta, GA 2013-2016
    - Provide feedback and suggestions for the development of new library design
- "9 Health In The Classroom" Sponsor, Grandview High School, Aurora, CO 1999-2012
    - Founded and organized annual student-led interactive health education program for high school students

References

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