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Engineering & Scientific Consulting

Regan Lawson, Ph.D., CSP, CXLT
Senior Managing Scientist | Human Factors
Atlanta
+1-678-412-4841 | rlawson@exponent.com

Professional Profile

Dr. Lawson is an expert in human perception and cognition, cognitive and motor skill development, and the influence of training, prior knowledge, and environmental factors on decision-making and behavior. She has extensive experience designing and conducting user studies, as well as evaluating warnings and safety information, for consumer products and medical devices in alignment with regulatory agencies such as FDA, IEC/AAMI, ANSI, and CPSC. Dr. Lawson applies her expertise in litigation matters, evaluating human factors aspects in incidents involving motor vehicles, pedestrians, consumer products, medical devices, and industrial equipment. Her work addresses a broad range of human factors and performance issues, including hazard identification, accident analysis, product-user interaction, and risk assessment, ensuring that safety information and product design are both effective and compliant with applicable regulations and guidelines.

Dr. Lawson investigates human factors and human performance issues in a wide variety of contexts including product warning and safety information; hazard identification involved with slips, trips and falls; response during emergency situations; motor vehicle and pedestrian accidents; evaluation of consumer, medical device, and industrial product interactions. Dr. Lawson has worked with medical device manufacturers at various stages of the product lifecycle, including conducting formative testing and focus groups during the design phase, evaluating use-related risk analyses, preparing, executing, and reporting results for summative human factors validation testing, and performing post-market surveillance activities such as focus groups and field observation. She, similarly, works with consumer product manufacturers assessing usability, performing use-related risk assessment, and evaluates the adequacy of instructions and warnings. She is skilled in a variety of methodologies for assessing usability, including surrogate and user studies, focus groups, surveys, video analysis, standards compliance analysis, injury database analysis, tribometry, and accident reconstruction.

Before joining Exponent, Dr. Lawson completed her graduate studies as a Graduate Research Assistant in the Cognitive Motor Control Laboratory at Georgia Institute of Technology. Her research work, under a National Institutes of Health Fellowship for Prosthetics and Orthotics, identified neurobehavioral measures predictive of motor skill learning and subsequent ability to transfer motor skills to novel situations. Dr. Lawson's research studied how the quality and speed of movements change during motor learning with specific assessment of concurrent changes in the visual and motor systems. Dr. Lawson has also provided consultation on projects examining visuomotor changes associated with dehydration and with child motor skill development.

After completing her degree, Dr. Lawson joined the faculty at Georgia Institute of Technology as a founding member for the undergraduate neuroscience program, providing expertise in the cognitive, perceptual, and decision-making aspects of the program. Dr. Lawson's 25 years of experience in education provides valuable insight into approaches for the delivery of instructional materials and training, child, adolescent, and older adult cognitive and motor developmental abilities and limitations, including situational awareness and decision-making with medical devices, consumer and industrial products,

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vehicles, warnings and instructions, and the environment. Dr. Lawson is also a Certified Safety Professional, a certified tribometrist and has AAMI training for conducting medical device human factors validation testing and preparing HFE/UE reports suitable for submission to the FDA.

Academic Credentials & Professional Honors

Ph.D., Applied Physiology, Georgia Institute of Technology, 2017

M.A., Secondary Curriculum and Instruction, University of Colorado, Boulder, 1994

B.S., Biomedical Engineering, Boston University, 1988

NIH Fellow for Prosthetics and Orthotics Research Training, 2013-2016

Georgia Institute of Technology Presidential Scholarship, 2013-2017

Colorado Teacher of the Year, Semi-Finalist, 1998

Licenses and Certifications

Certified English XL Tribometrist (CXLT) (GA)

Certified Safety Professional (CSP)

Academic Appointments

Academic Professional, Neuroscience, Georgia Institute of Technology, 2017-2019

Program Instructor, Anatomy, Physiology & Medical Ethics, Duke TIP, 2015

Science Teacher, Grandview High School, 1998-2012

Science Teacher, Prairie Middle School, 1992-1998

Prior Experience

Educational Editor, Springer Publisher, 2015-2019

Educational Consultant, Georgia Institute of Technology, 2015-2018

District S.T.A.R. Mentor, Cherry Creek School District, 2012-2013

Staff Development Coordinator, Grandview High School, 2008-2012

Professional Affiliations

Human Factors and Ergonomics Society, 2019-present

Society for Neuroscience, 2015-present

Board of Certified Safety Professionals, 2021-present

Association for the Advancement of Medical Instrumentation (AAMI), 2022-present

Publications

Stein, S.L., & Lawson, R.R. (Eds.). (2020). Laparoscopic Colectomy: A Step by Step Guide (1st ed. 2020). Springer.

Bayani, K., Rickerson, B., Levinson, L., Wheaton, L., Otwell, M., Atawala, N., Lawson, R., Mitchell, S., Implicit eye gaze strategies support motor improvements during action encoding training of prosthesis use, Neuropsycholgia 2019, 127:75-83.

Lawson, RR, Gayle, JO, Wheaton, LA, Individualized predictor for the presence of incidental explicit awareness in sequential motor learning tasks, PLoS One, 2017; 12(4):e0175176.

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, 2016; 48(5):446-454.

Presentations

Dehydration impairs accuracy and increases brain activity during a rhythmic bimanual choice reaction time task, American College of Sports Medicine, May 2019.

Neurobehavioral quantification of the transition to explicit awareness in skilled motor learning: Implications for rehabilitation. Presented at Georgia Institute of Technology, November 2017. Dissertation Defense.

Dehydration impairs accuracy and increases brain activity during a rhythmic bimanual choice reaction time task, American College of Sports Medicine, May 2019.

Neurobehavioral quantification of the transition to explicit awareness in skilled motor learning: Implications for rehabilitation. Presented at Georgia Institute of Technology, November 2017. Dissertation Defense.

Successful transfer of recently acquired motor skills may be dependent on enhanced visuomotor error monitoring during initial learning: an individualized movement-locked ERP analysis, Society for Neuroscience, November 2018.

Neurobehavioral correlates provide mechanistic insight into how the development of incidental explicit awareness facilitates motor skill generation, American Society for Neurorehabilitation & Society for Neuroscience, November 2017.

(T)racing Eyes and Hearts: An Art Installation to Explore the Physiology of Empathy, 4-S Conference, August 2017.

Neurobehavioral validation of an individualized behavioral indicator for the presence of incidental explicit awareness in sequential motor learning, Society for Neuroscience, November 2016.

Individual behavioral marker for identification of explicit awareness during sequential motor learning, Society for Neuroscience, October 2015.

Influence of perspective of action observation training on motor outcomes in native prosthesis usage, Society for Neural Control of Movement, April 2015.

Molecular evidence for multiple purinergic P2X receptor subtypes in supraoptic nucleus, Experimental Biology Conference, March 2009

Additional Education & Training

University of Colorado Health Sciences Medical School, 1997-1998

Human Factors for Medical Devices training program, AAMI University, 2022