

BEN MOTZ

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Education

- 2018 **Indiana University – Bloomington, Indiana**
PhD in Cognitive Science
Minor in Psychology
Thesis: *Expectations During the Perception of Auditory Rhythms*
- 2005 **University of California San Diego – La Jolla, California**
MS in Cognitive Science
Thesis: *Expecting Repetitive Events: The Role of Tempo*
- 2002 **Indiana University – Bloomington, Indiana**
BS in Cognitive Science
Concentrations in Neuroscience and Computer Science
University & Departmental Honors
Thesis: *The Behavior of the Infant Rat on Inclined Planes: A Reassessment*

Professional Experience

- July 2018 - *current* **Research Scientist**, Department of Psychological and Brain Sciences
- August 2008 – June 2018 **Senior Lecturer**, Department of Psychological and Brain Sciences
Indiana University (Bloomington, Indiana)
- January 2006 – June 2008 **Statistical Consultant**, Analytics
Rapp Collins Worldwide (El Segundo, California)
- September 2003 – January 2006 **Graduate Associate Instructor**, Department of Cognitive Science
University of California San Diego (La Jolla, California)
- May 2001 – August 2003 **Research Assistant**, Animal Behavior Laboratory
Indiana University (Bloomington, Indiana)

Appointments

Director, eLearning Research and Practice Lab, Pervasive Technology Institute – 2019 - *current*
Associate Director, Data to Insight Center, Pervasive Technology Institute – 2019 - *current*
Faculty Fellow for Academic Analytics, eDS, University Information Technology Services – 2018 - 2020
Director of Undergraduate Instruction and Online Development
IU Department of Psychological and Brain Sciences – 2015-2018
Director of Pedagogy, IU Department of Psychological and Brain Sciences – 2012-2014

Service

Invited Member, Research Committee, Unizin Consortium – 2019 - *current*
Academic Editor, PLoS ONE – 2018 - *current*
Undergraduate Curriculum Committee, IU Department of Psychological and Brain Sciences – 2009-*current*
Chair, Ad Hoc Assessment Committee – 2013-2014
Curator, Designer, and Developer, Cognitive Science Movie Index – 2010-2018
<http://www.indiana.edu/~cogfilms/>
Invited Member, Educational Policies Committee, IU Bloomington Faculty Council – 2014-2016
Active Learning Online Faculty Learning Community, IU CITL – 2015-2016
Invited Member, Indiana University Faculty Leadership Institute, IU FACET – 2014-2016
Elected Member, Student Academic Appointee Board of Review, IU Bloomington Faculty Council – 2014-5
Consultant and On-Camera Interviewee, NFL Network – 2011-2014
Organizer, Pedagogy Seminar, IU Department of Psychological and Brain Sciences – 2011-2014
Preparing Future Professors Faculty Learning Community, IU CITL – 2010-2014
Invited Member, Undergraduate Strategic Planning Committee, Indiana University Bloomington – 2013
Branding and Website Committee, IU Department of Psychological and Brain Sciences – 2009-2013
Principal designer and developer of departmental website (2011 redesign)
Co-Editor – UCSD Cognitive Science Online, 2004-2005
Reviewer for: *Biological Psychology*, *Cognition and Instruction*, *Human Brain Mapping*, *IEEE Transactions on Neural Systems and Engineering*, *Journal of Quantitative Analysis in Sports, Learning and Instruction*, *NeuroImage*, *Oxford University Press*, *PLoS ONE*

Courses Taught

[Online] Introductory Psychology 1 (IU) – 2015-*current*
Research methods, neuroscience, perception, learning, and cognitive psychology
Introduction to Psychological and Brain Sciences (IU) – 2009-2015
Brain anatomy, perception, development, cognitive psychology, and social psychology

Cognitive Psychology (IU) – 2009-2014

Upper-level survey of mental functions, theories, and experiments in cognitive psychology

Prediction, Probability, and Pigskin (IU) – 2012-2014

Freshman-level introduction to analytical techniques thru the lens of fantasy football

Methods in Experimental Psychology (IU) – 2009-2014

Experimental methods, research design, and scientific writing

Teaching of Psychology (IU) – 2012-2014

Graduate survey of pedagogical practices, emphasis on training lab instructors

General Psychology Honors (IU) – 2008-2012

Survey of introductory psychology material, including weekly advanced labs and demonstrations

Neuroanatomy and Physiology (UCSD, with Jaime Pineda) – 2005

Brain anatomy, cortical function, and neural information processing

Learning and Memory (UCSD, with Seana Coulson) – 2005

Experimental foundations of psychological theories of learning and memory

Introduction to Cognitive Science (UCSD, with Jochen Triesch) – 2004

Freshman course to provide interdisciplinary overview of Cognitive Sciences

Java Programming for Cognitive Modeling (UCSD, with John Batali) – 2004

Introduction to Java programming and its applications in the modeling of cognitive processes

Design and Analysis of Experiments (UCSD, with John Batali) – 2004

Mathematical introduction to probability, test design, and inferential statistics

Mathematical Foundations of Cognitive Science & Informatics (IU, with Ruth Eberle) – 2001-2002

Introduction to mathematical and logical tools for building models in the information sciences

Publications

Journal Articles

Eyink, J.*, **Motz, B.***, Heltzel, G., & Liddell, T. (2020). Self-regulated studying behavior, and the social norms that influence it. *Journal of Applied Social Psychology, 50*(1), 10-21. doi: [10.1111/jasp.12637](https://doi.org/10.1111/jasp.12637) (* co-first authors)

Motz, B., Carvalho, P., de Leeuw, J., & Goldstone, R. (2018). Embedding experiments: Staking causal inference in authentic educational contexts. *Journal of Learning Analytics, 5*(2), 47-59. doi: [10.18608/jla.2018.52.4](https://doi.org/10.18608/jla.2018.52.4)

Motz, B., de Leeuw, J., Carvalho, P., Liang, K., & Goldstone, R. (2017). A dissociation between engagement and learning: Enthusiastic instructions fail to reliably improve performance on a memory task. *PLoS ONE, 12*(7): e0181775. doi: [10.1371/journal.pone.0181775](https://doi.org/10.1371/journal.pone.0181775)
(Winner of the Center for Open Science Preregistration Challenge Award)

- de Leeuw, J. & **Motz, B.** (2016). Psychophysics in a Web browser? Comparing response times collected with JavaScript and Psychophysics Toolbox in a visual search task. *Behavior Research Methods*, 48(1), 1-12. doi: [10.3758/s13428-015-0567-2](https://doi.org/10.3758/s13428-015-0567-2)
- Carvalho, P., Braithwaite, D., de Leeuw, J., **Motz, B.**, & Goldstone, R. (2016). An in-vivo study of self-regulated study sequencing in Introductory Psychology courses. *PLoS ONE* 11(3): e0152115. doi: [10.1371/journal.pone.0152115](https://doi.org/10.1371/journal.pone.0152115)
- Day, S., **Motz, B.**, Goldstone, R. (2015). The cognitive costs of context: The effects of concreteness and immersiveness in instructional examples. *Frontiers in Psychology*, 6(1876). doi: [10.3389/fpsyg.2015.01876](https://doi.org/10.3389/fpsyg.2015.01876)
- Motz, B.**, Teague, J., & Shepard, L. (2015). Know thy students: An institutional report that provides aggregate student data to instructors. *EDUCAUSE Review Online (Peer Reviewed Category)*. <http://www.educause.edu/ero/article/know-thy-students-providing-aggregate-student-data-instructors>
- Motz, B.** (2013). Cognitive science in popular film: The Cognitive Science Movie Index. *Trends in Cognitive Sciences*, 17(10), 483-485. doi: [10.1016/j.tics.2013.08.002](https://doi.org/10.1016/j.tics.2013.08.002)
- Motz, B.**, Erickson, M. & Hetrick, W. (2013). To the beat of your own drum: Cortical regularization of non-integer ratio rhythms toward metrical patterns. *Brain and Cognition*, 81(3), 329-336. doi: [10.1016/j.bandc.2013.01.005](https://doi.org/10.1016/j.bandc.2013.01.005)
- Motz, B.**, James, K. & Busey, T. (2012). The Lateralizer: A tool for students to explore the divided brain. *Advances in Physiology Education*, 36(3), 220-225. doi: [10.1152/advan.00060.2012](https://doi.org/10.1152/advan.00060.2012)
- Motz, B.**, Goldstein, M. & Smith, L. (2012). Understanding behavior from the ground up: Constructing robots to reveal simple mechanisms underlying complex behavior. *Psychology Learning and Teaching*, 11(1), 77-86. doi: [10.2304/plat.2012.11.1.77](https://doi.org/10.2304/plat.2012.11.1.77)
- Núñez, R., **Motz, B.**, & Teuscher, U. (2006). Time after time: The psychological reality of the Ego- and Time-Reference-Point distinction in metaphorical construals of time. *Metaphor and Symbol*, 21(3), 133-146. doi: [10.1207/s15327868ms2103_1](https://doi.org/10.1207/s15327868ms2103_1)
- Motz, B.**, & Alberts, J. (2005). The validity and utility of geotaxis in infant rats. *Neurotoxicology and Teratology*, 27, 529-533 and 543-544. doi: [10.1016/j.ntt.2005.06.005](https://doi.org/10.1016/j.ntt.2005.06.005)
- Alberts, J., **Motz, B.**, & Schank, J. (2004). Positive geotaxis in infant rats: A natural behavior and a historical correction. *Journal of Comparative Psychology*, 118(2), 123-132. doi: [10.1037/0735-7036.118.2.123](https://doi.org/10.1037/0735-7036.118.2.123)

Other

Fyfe, E., de Leeuw, J. R., Carvalho, P. F., Goldstone, R., & **Motz, B.** (preprint). ManyClasses 1: Assessing the generalizable effect of immediate versus delayed feedback across many college classes. *PsyArxiv*. doi: [10.31234/osf.io/4mvyh](https://doi.org/10.31234/osf.io/4mvyh)

Motz, B. (August 23, 2019). Principles for the responsible design of automated student support. *EDUCAUSE Review, Transforming Higher Ed Blog*.
<https://er.educause.edu/blogs/2019/8/principles-for-the-responsible-design-of-automated-student-support>

Kiang, M., & **Motz, B.** (2005). Letter from the editors: Intersection Point. *Cognitive Science Online*, 3(2), i-ii. [paper pdf](#)

Refereed Conference Presentations

Quick, J., Motz, B., Israel, J., Kaetzel, J. (2020). What college students say, and what they do: Aligning self-regulated learning theory with behavioral logs. In *Proceedings 10th International Conference on Learning Analytics & Knowledge (LAK19)*. doi: [10.1145/3375462.3375516](https://doi.org/10.1145/3375462.3375516)

Motz, B., Quick, J., Schroeder, N., Zook, J., & Gunkel, M. (2019). The validity and utility of activity logs as a measure of student engagement. In *Proceedings 9th International Conference on Learning Analytics & Knowledge (LAK19)*. doi: [10.1145/3303772.3303789](https://doi.org/10.1145/3303772.3303789)

Motz, B. & Carvalho, P. (2019). Not whether, but where: Scaling-up how we think about effects and relationships in natural educational contexts. In *Companion Proceedings 9th International Conference on Learning Analytics & Knowledge (LAK19)*. doi: [10.13140/RG.2.2.30825.34407](https://doi.org/10.13140/RG.2.2.30825.34407)

Motz, B., de Leeuw, J., Carvalho, P., Fyfe, E., & Goldstone, R. (2018). ManyClasses: A model for abstracting generalizable research principles from different learning contexts. Presentation at *replicate.education: A Workshop on Large Scale Education Replication*. Buffalo, New York. [paper pdf](#)

Motz, B., Busey, T., Rickert, M., Landy, D. (2018). Finding topics in enrollment data. Proceedings of the 11th International Conference on Educational Data Mining. Buffalo, New York. [paper pdf](#)

Carvalho, P., Gao, M., Motz, B., & Koedinger, K. (2018). Analyzing the relative learning benefits of completing required activities and optional readings in online courses. Proceedings of the 11th International Conference on Educational Data Mining. Buffalo, New York.

Motz, B., & Eyink, J. (2017). Online self-directed learning activities, and the norms that influence them. Presentation at the 2nd annual *IU Online Conference*, Indianapolis, Indiana.

Yu, J., Motz, B., & Landy, D. (2017). Big data: An exploratory study of in-vivo online courses. Poster presented at Beyond the Lab: Using Big Data to Discover Principles of Cognition, Leading Edge Workshop of the *Psychonomic Society*, Madison, Wisconsin.

- Motz, B., & Rickert, M. (2016). Educational outcomes following enrollment in Introductory Psychology. Poster presented at the Society for the Teaching of Psychology Teaching Institute at the 23rd Annual Conference of the *Association for Psychological Science*, Chicago, Illinois. [poster pdf](#)
- de Leeuw, J., Motz, B., Eastwood, J., Maltese, A., Goldstone, R., & Danish, J. (2015). Needle in the neural haystack: EEG signatures of concept learning while viewing naturalistic educational materials. Paper presented at the 2015 annual meeting of the *American Educational Research Association*, Chicago, Illinois.
- Carvalho, P.F., Braithwaite, D. W., de Leeuw, J. R., Motz, B. A., & Goldstone, R.L. (2014). Effectiveness of Learner-Regulated Study Sequence: An in-vivo study in Introductory Psychology courses. Proceedings of the 37th Annual Conference of the *Cognitive Science Society*.
- Motz, B. (2013). Fantasy football: A touchdown for undergraduate statistics education. Paper and presentation at the annual meeting of *Games+Learning+Society*, Madison, Wisconsin. [paper pdf](#), [slides pdf](#)
- Motz, B. (2011). Student-generated public service announcements: A case study of the need for careful assessment of learning outcomes. Poster presented at the “Spotlight on Innovation” poster session for Indiana University’s *Center for Innovative Teaching and Learning*, Bloomington, Indiana. [poster pdf](#)
- Erickson, M., Motz, B., & Hetrick, W. (2010). Rhythm of perception and attention: An OEP study of temporal attention. Poster presented at the annual meeting of the *Society for Psychophysiological Research*, Portland, Oregon. [poster pdf](#)
- Motz, B., Urbach, T., & Kutas, M. (2005). Effects of tempo on rhythmic expectations. Poster and presentation at the biennial workshops of the *Society for Music Perception and Cognition*, San Diego, California. [poster pdf](#)
- Motz, B., & Núñez, R. (2004). Implications of new baseline data in the spatial construal of time. Paper and poster presented at the annual meeting of the *Cognitive Science Society*, Chicago, Illinois. [paper pdf](#), [poster pdf](#)
- Motz, B., & Alberts, J. (2001). Positive evidence of geotaxis in 10-day-old rats. Poster presented at the annual meeting of the *International Society for Developmental Psychobiology*, San Diego, California.

Invited Talks, Seminar Presentations, and Guest Lectures

- 23 Oct 2019 *New eLearning data, and what to do with it*. Presentation at CogLunch, Cognitive Science Speaker Series. Bloomington, Indiana.
- 15 Oct 2019 *Boost: A personal assistant for online learning*. Invited presentation at the EDUCAUSE *Under the Ed Tech Radar Pitch Competition*. Chicago, Illinois.

- 25 Sep 2019 *ManyClasses: A game-changing experiment exploring educational interventions.* Invited presentation at the inaugural University of Minnesota Learning Analytics Meet Up Series. Minneapolis, Minnesota.
- 19 Apr 2019 *Nudges as behavioral guide rails: An intervention system to proactively prevent students from missing assignments.* Presentation at the 2019 Unizin Summit. Denver, Colorado.
- 17 Apr 2019 *ManyClasses v1: A call for participation in a game-changing experiment on the psychology of learning.* Presentation at the 2019 Unizin Summit. Denver, Colorado.
- 1 Mar 2019 *This is your student's brain on Canvas.* Invited keynote presentation at the School for Public and Environmental Affairs (SPEA) Connect 2019 Teaching Workshop. Bloomington, Indiana.
- 15 Nov 2018 *Rendering retrieval practice as precious or painful.* Presentation at the Biennial Meeting of the International Association of Metacognition. New Orleans, Louisiana.
- 27 Oct 2017 *Online self-directed learning activities, and the norms that influence them.* Presentation at IU Social Psychology Seminar. Bloomington, Indiana.
- 29 Sep 2017 *Motivating and teaching the psychological science.* Invited keynote presentation at Indiana Students and Teachers of Psychological Science (ISTOPS) 2017 Conference. Marian University, Indiana.
- 8 Aug 2017 *How primary sources can improve student learning.* Invited keynote presentation at the inaugural Primary Source Immersion Program, IU Libraries. Bloomington, Indiana.
- 26 Jul 2017 *Embedding assessments in online content using Quick Check.* Invited workshop presentation and accompanying webinar at Indiana University's Center for Innovative Teaching and Learning. Bloomington, Indiana.
- 25 Feb 2017 *Evidence-Based Teaching.* Invited presentation at the Annual Meeting of the Council of Graduate Departments of Psychology (COGDOP). Greenville, South Carolina.
- 1 Apr 2016 *Teaching Hackathon.* Master of ceremonies and co-organizer for inaugural hackathon at Indiana University's Center for Innovative Teaching and Learning Celebration of Teaching 2016. Bloomington, Indiana.
- 12 Feb 2016 *The Future of Teaching.* Invited panelist at Preparing Future Faculty Conference. Bloomington, Indiana.
- 4 Feb 2016 *Positioning Psychology Among Indiana's High School Sciences.* Presentation at Hoosier Association for Science Teachers, Inc. (HASTI). Indianapolis, Indiana.
- 21 Oct 2015 *Ubiquitous lightweight assessment in an online course.* Presentation at Indiana University's Statewide IT 2015 Conference. Bloomington, Indiana.

- 27 Feb 2015 *Psychology Perspective on MCAT 2015*. Seminar presentation for advisees of Indiana University's Health Professions and Prelaw Center (HPPLC). Bloomington, Indiana.
- 8 Oct 2014 *Know thy students: An institutional report on aggregate student data*. Presentation at Indiana University's Statewide IT 2014 Conference. Bloomington, Indiana.
- 6 Feb 2014 *The Psychological Science: Mind, Brain, & Behavior*. Presentation at Hoosier Association for Science Teachers, Inc. (HASTI). Indianapolis, Indiana.
- 11 Oct 2013 *Psychology in the Real World*. Invited moderator for plenary discussion panel at the 125th anniversary celebration of the Department of Psychological and Brain Sciences. Bloomington, Indiana.
- 26 Aug 2013 *Ethics and scientific integrity*. Invited panelist at Cognitive Neuroscience Seminar. Bloomington, Indiana.
- 8 Feb 2013 *Lecture as laboratory: Applying scientific inquiry to teaching practices*. Invited plenary at the University of Louisville Delphi Celebration of Teaching & Learning. Louisville, Kentucky.
- 7 Feb 2013 *Let's talk about study guides*. Moderated discussion at the Department of Psychological and Brain Sciences Pedagogy Seminar. Bloomington, Indiana.
- 12 Mar 2012 *To the beat of your own drum: Cortical regularization of non-integer ratio rhythms toward metrical patterns*. Presentation at CogLunch, Cognitive Science Speaker Series. Bloomington, Indiana.
- 15 Apr 2011 *Morality, empathy, and attribution of responsibility*. Invited presentation to Moral Psychology Reading Group. Bloomington, Indiana.
- 25 Oct 2010 *Psychology at business*. Invited lecture to PSY P452 Psychology in the Business Environment. Bloomington, Indiana.
- 21 Nov 2008 *Grounding abstract concepts*. Invited presentation to the Percepts and Concepts Laboratory. Bloomington, Indiana.
- 14 Nov 2007 *Bootstrapping to evaluate differences in proportions*. Technical report and presentation to the Rapp Collins Analytics Department. El Segundo, California.
- 27 Mar 2007 *Structural equation modeling using PROC CALIS*. Technical report and presentation to the Rapp Collins Analytics Department. El Segundo, California.

Honors and Awards

Platinum Award (highest award), IMS Global Learning Impact Awards – IMS Global, 2019

President's Award for Excellence in Teaching and Learning Technology – Indiana University, 2015

Trustee Teaching Award – Indiana University, 2012, 2014, 2016

Faculty Appreciation Award – IU Women's Basketball Program, 2009, 2014

Outstanding Teaching Award, Cognitive Science – Indiana University, 2013
Student Choice Award Nomination – Indiana University, 2009, 2010, 2011, 2012
Rising Star Award (annual office award) – Rapp Collins Los Angeles, 2008
Superior Teaching Award, Cognitive Science – UCSD, 2004, 2005, 2006
800/800 (perfect score) on Analytical Section of GRE – 2003
Outstanding Contribution Award, Cognitive Science – Indiana University, 2002
Senior Leaders Award – Indiana University, 2001

Grants and Scholarships

Provocations: Conversations Towards a Bold University in the 21st Century (\$4,950)
Indiana University, Institute for Advanced Study, 2019

SOTL Grant (\$5,000) – Indiana University, 2017
PI: Rick Hullinger / Co-PIs: Ben Motz and John Kruschke
Improving Teaching Through Enhanced Analysis of Teaching Evaluations

APS Fund for Teaching and Public Understanding of Psychological Science (\$11,000) – APS, 2016
PI: Ben Motz / Co-PIs: Ed Hirt, David Landy, and Rob Goldstone
Improving Student Motivation and Success with Social Norm Messaging

Student Learning and Success in STIM (\$30,000) - Bay View Alliance, 2014
PI: Ben Motz / Co-PIs: David Landy and Tom Busey
Charting Educational Outcomes Following P101 with Linear Modeling: Enabling Data-Driven Improvement of Introductory Psychology

CITL Writing Program Summer Writing-Teaching Grant (\$1,500) – Indiana University, 2012

SOTL Active Learning Grant (\$1,500) – Indiana University, 2009
Making Public Service Announcements as a Teaching Aid for Cognitive Psychology

NIH Travel Award – National Institute of Health, 2001

Media Appearances & Features

The Learning Curve, [The New Ed Research Tool, "ManyClasses"](#) (12 Nov 2019)

Fox Sports 1 & NFL Network, *NFL Films*

NFL Films Presents, Pursuing your Passion- Featured segment on C105 (10 Oct 2014)

NFL Top Ten, Top 10 Fantasy Seasons (04 Sep 2014)

Inside IUB, [Video Feature: IU undergrads design palm sweat sensors to test results of psychological experiments](#) (31 Jan 2014)

NFL Network, *NFL 2020*

[Player Health and Safety](#) (Episode 7; 04 Dec 2013)

[The Fan Experience](#) (Episode 6; 20 Nov 2013)

[Analytics & Officiating](#) (Episode 4; 24 Oct 2013)

[The Game](#) (Episode 3; 10 Oct 2013)

Inside IUB, [Featured Spotlight: Ben Motz](#) (24 Oct 2013)

NBC News, LiveScience.com, [Top Brain Science Movies Revealed](#) (01 Oct 2013)

BrainBlogger.com, [Swing jazz and neural oscillations](#) (19 Aug 2013)

NFL Network, *Path to the Draft*

[Body clock](#) (17 Apr 2012)

WTHR, *Eyewitness News*, [IU prof uses stats to predict NFL performance](#) (15 Feb 2012)

NPR, *Morning Edition*, [Is home-field advantage the real deal?](#) (11 Jan 2012)

Herald Times, *Teaching through football* (16 Jan 2012)

NFL Network, *Football Freakonomics*

[Does firing your head coach fix anything?](#) (Episode 9; 28 Dec 2011)

[Home field advantage](#) (Episode 7; 14 Dec 2011)

[How much do injuries hurt?](#) (Episode 6; 07 Dec 2011)

[Is the NFL a QB-driven league?](#) (Episode 5; 30 Nov 2011)

Indiana University Teaching & Learning Faculty Showcase, [Sharing Knowledge](#) (Spring 2010)

WIUX, *News Hour*, [Understanding Abstract Concepts: A WIUX Interview with Ben Motz](#) (24 Feb 2010)

The Guardian, [How Time Flies](#) (23 Feb 2005)