

MELISSA TROYER

Beckman Institute
University of Illinois at Urbana-Champaign

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Academic Positions

- 2021- **University of Illinois at Urbana-Champaign**, Champaign, IL
Postdoctoral Fellow, Beckman Institute
- 2019-2021 **Western University**, London, ON
Postdoctoral Associate, Brain and Mind Institute

Education

- 2019 **University of California San Diego**, La Jolla, CA
PhD, Cognitive Science
- 2012 **Massachusetts Institute of Technology**, Cambridge, MA
M.S., Cognitive Science
- 2008 **Indiana University**, Bloomington, IN, *summa cum laude*
B.A., Linguistics, French
B.S., Cognitive Science
B.S., Psychology

Grants and Fellowships

- 2021- Beckman Postdoctoral Fellowship, University of Illinois at Urbana-Champaign
- 2019-2021 BrainsCAN Postdoctoral Fellowship, University of Western Ontario
- 2017 Summer Graduate Teaching Scholar, UCSD
- 2017 Kavli Summer Institute in Cognitive Neuroscience Fellowship
- 2016-2017 Frontiers of Innovation Scholars Program Award, UCSD
- 2012-2016 Kroner Fellowship, UCSD
- 2011-2014 National Science Foundation (NSF) Graduate Research Fellowship
- 2008-2011 National Defense Science and Engineering Graduate (NDSEG) Fellowship
- 2004-2008 Hudson-Holland Scholar, Indiana University

Journal Articles

- Troyer, M.**, McRae, K., & Kutas, M. (2022). Wrong or right? Brain potentials reveal hemispheric asymmetries to semantic relationships during word-by-word reading as a function of (fictional) knowledge. *Neuropsychologia*, 108215. doi: 10.1016/j.neuropsychologia.2022.108215
- Troyer, M.** & McRae, K. (2021). Semantic and thematic relations central to abstract (and concrete) concepts. *Psychological Research*. doi: 10.1007/s00426-021-01484-8
- Troyer, M.** & Kutas, M. (2020). To catch a Snitch: Brain potentials reveal variability in the functional organization of (fictional) world knowledge during reading. *Journal of Memory and Language*, 113, 104111, 1-22. doi: 10.1016/j.jml.2020.104111
- Troyer, M.**, Urbach, T.P., & Kutas, M. (2019). *Lumos!*: Electrophysiological tracking of (wizards) world knowledge use during reading. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 46(3), 476-486. doi: 10.1037/xlm0000737
- Troyer, M.** & Kutas, M. (2018). Harry Potter and the Chamber of *What?*: the impact of what individuals know on word processing during reading. *Language, Cognition, and Neuroscience*, 35(5), 641-657. doi: 10.1080/23273798.2018.1503309
- Troyer, M.** & Borovsky, A. (2017). Maternal socioeconomic status influences the range of expectations during language comprehension in adulthood. *Cognitive Science*, 41, 1405-1433. doi: 10.1111/cogs.12488

- Troyer, M., Hofmeister, P., & Kutas, M.** (2016). Elaboration over a discourse facilitates retrieval in sentence processing. *Frontiers in Psychology*, 7, 374, 1-9. doi: 10.3389/fpsyg.2016.00374
- Wang, H., Ma, L., Wang, Y., **Troyer, M.**, & Li, Q. (2015). An ERP study in English relative clause processing by Chinese-English bilinguals. *Chinese Journal of Applied Linguistics*, 38(1), 3-35. doi: 10.1515/cjal-2015-0001
- Troyer, M.**, Curley, L.B., Miller, L.E., Saygin, A.P., & Bergen, B.K. (2014). Action verbs are processed differently in metaphorical and literal sentences depending on the semantic match of visual primes. *Frontiers in Human Neuroscience*, 8, 982, 1-16. doi: 10.3389/fnhum.2014.00982
- DeLong, K.A., **Troyer, M.**, & Kutas, M. (2014). Pre-processing in sentence comprehension: Sensitivity to likely upcoming meaning and structure. *Language and Linguistics Compass*, 8(12), 631-645. doi: 10.1111/lnc3.12093
- Miller, B.R., **Troyer, M.**, & Busey, T.A. (2008). Virtual EEG: A software-based electroencephalogram designed for undergraduate neuroscience-related courses. *The Journal of Undergraduate Neuroscience Education (JUNE)*, 7(1), A19-A25. Software available at <http://virtualeeg.psych.indiana.edu>.

Manuscripts in Progress

- Leckey, M., **Troyer, M.**, & Federmeier, K.D. (Submitted). Patterns of hemispheric asymmetry provide evidence dissociating the semantic and syntactic P600.
- Brown, K., Yee, E., Jorgensen, G., **Troyer, M.**, Saltzman, E., Magnuson, J., & McRae, K. (Under revision). Investigating the extent to which Distributional Semantics Models capture a broad range of semantic relations.
- Troyer, M.**, Kutas, M., Batterink, L.B., & McRae, K. (In preparation). Nuances of knowing: Brain potentials reveal implicit effects of domain knowledge on processing word meaning during reading in the absence of explicit sentence-level knowledge.
- Troyer, M.**, Kutas, M., & Federmeier, K.D. (In preparation). Qualitatively different ERP patterns during word-by-word reading revealed by individual differences at the language-knowledge interface.

Refereed Conference Proceedings Articles

- Troyer, M.** & Kutas, M. (2020). Hemispheric asymmetries in “expert” processing of semantic relationships during reading. *Proceedings of the 42nd Annual Conference of the Cognitive Science Society* (pp. 2580-2586). Austin, TX: Cognitive Science Society.
- Troyer, M.** & Kutas, M. (2019). To catch a Snitch: Brain potentials reveal variability in the functional organization of (fictional) world knowledge during reading. In A.K. Goel, C.M. Seifert, & C. Freksa (Eds.), *Proceedings of the 41st Annual Conference of the Cognitive Science Society* (pp. 1149-1155). Austin, TX: Cognitive Science Society.
- Troyer, M.** & Kutas, M. (2017). It’s all in your head: Effects of expertise on real-time access to knowledge during written sentence processing. In G. Gunzelmann, A. Howes, T. Tenbrink, & E.J. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 1212-1217). Austin, TX: Cognitive Science Society.
- Troyer, M.** & Borovsky, A. (2015). Childhood SES affects anticipatory language comprehension in college-aged adults. In Noelle, D.C., Dale, R., Warlaumont, A.S., Yoshimi, J., Matlock, T., Jennings, C.D. & Maglio, P.P., (Eds.), *Proceedings of the 37th Annual Conference of the Cognitive Science Society* (pp. 2428-2433). Austin, TX: Cognitive Science Society.
- Troyer, M.**, O'Donnell, T.J., Fedorenko, E. & Gibson, E. (2011). Storage and computation in syntax: Evidence from relative clause priming. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 336-341). Austin, TX: Cognitive Science Society.

Conference Presentations

- Xu, Y., **Troyer, M.**, Limachya, R., Jongman, S.R., Segaert, K., & Federmeier, K.D. (October 2022). Does Producing Language Induce More Prediction During Comprehension? Poster at the 14th Annual Meeting of the Society for Neurobiology of Language.
- Troyer, M.**, Stine-Morrow, E.A.L., & Federmeier, K.D. (September 2022). *Revelio!*: Brain potentials reveal a similar impact of knowledge on word-by-word reading in older and younger adults. Poster at the Society for Psychophysiological Research.
- Troyer, M.**, Federmeier, K.D., & Kutas, M. (May 2022). Brain potentials reveal variation in (post-)predictive processing during language comprehension as a function of item-level retrieval difficulty. Interactive presentation at the Leading Edge Workshop on Co-Registration, Tampa, FL.
- Troyer, M.**, Federmeier, K.D., & Kutas, M. (April 2022). Late positive brain potentials vary with individual-level knowledge and item-level retrieval difficulty during reading. Poster at the Cognitive Neuroscience Society, San Francisco, CA.
- Troyer, M.**, Federmeier, K.D., & Kutas, M. (March 2022). Brain potentials reveal variation in (post-)predictive processing during language comprehension as a function of item-level retrieval difficulty. Virtual poster at the 35th Annual Conference on Human Sentence Processing, hosted by UC Santa Cruz.
- Troyer, M.**, Urbach, T.P., & Kutas, M. (October 2020). Toward dissociating general reading experience and domain-specific knowledge sources during RSVP reading: An exploratory rERP analysis. Virtual poster at the Society for the Neurobiology of Language. doi: 10.17605/OSF.IO/YNV9K
- Troyer, M.**, Kutas, M., & McRae, K. (September 2020). Nuances of knowing: ERPs reveal dual influences of domain knowledge on semantic processing and knowledge confirmation during reading. Virtual poster at 26th AMLaP Conference.
- Troyer, M.** & Kutas, M. (July 2020). Hemispheric asymmetries in “expert” processing of semantic relationships during reading. Virtual poster at CogSci 2020, Toronto, Canada.
- Troyer, M.** & Kutas, M. (May 2020). Hemispheric asymmetries in processing semantic relationships during reading. Virtual poster at the Cognitive Neuroscience Society, Boston, MA.
- Troyer, M.** & Kutas, M. (September 2019). An integrative approach to studying individual differences in (fictional) world knowledge organization and use during reading. Talk at PsyLinCS, University of Toronto Mississauga.
- Troyer, M.** & Kutas, M. (July 2019). To catch a Snitch: Brain potentials reveal variability in the functional organization of (fictional) world knowledge during reading. Talk at CogSci 2019, Montreal, Canada.
- Troyer, M.** & Kutas, M. (March 2019). Harry Potter and the language-knowledge interface: ERPs reveal retrieval of domain and specific knowledge during reading. Talk at the 32nd CUNY Conference on Human Sentence Processing, Boulder, CO.
- Troyer, M.** & Kutas, M. (March 2018). Catching a Snitch vs. catching a Bludger: Variability in world knowledge influences real-time access to word meaning. Poster at the Cognitive Neuroscience Society, Boston, MA.
- Troyer, M.** & Kutas, M. (November 2017). Making sense of real-time access to knowledge during sentence processing: What you know, what you don't know, and what you don't know you know. Poster at the 9th Annual Meeting of the Society for Neurobiology of Language, Baltimore, MD.
- Troyer, M.** & Kutas, M. (July 2017). It's all in your head: Effects of expertise on real-time access to knowledge during written sentence processing. Talk at CogSci 2017, London, UK.
- Troyer, M.** & Kutas, M. (March 2017). Harry Potter and the Chamber of WHAT?: Real-time semantic access is a function of the individual's knowledge. Poster at the Cognitive Neuroscience Society, San Francisco, CA.
- Troyer, M.** & Borovsky, A. (March 2015). Childhood SES affects anticipatory language comprehension in college-age adults. Poster at the 28th CUNY Conference on Human Sentence Processing, University of Southern California, Los Angeles, CA.

- Troyer, M.,** Hofmeister, P., & Kutas, M. (March 2015). Pronoun resolution is sensitive to the complexity of the antecedent: Evidence from ERPs. Poster at the Cognitive Neuroscience Society, San Francisco, CA.
- Troyer, M.,** Guerra, E., Amsel, B.D., Urbach, T.P., DeLong, K.A., Knoeferle, P., & Kutas, M. (April 2014). Spatial distance influences the neural response to different semantic relations. Poster at the Cognitive Neuroscience Society, Boston, MA.
- Troyer, M.,** Hofmeister, P., & Kutas, M. (March 2014). Elaboration of concepts facilitates their retrieval in sentence processing. Poster at the 27th CUNY Conference on Human Sentence Processing, Ohio State University, Columbus, OH.
- Troyer, M.,** O'Donnell, T.J., Fedorenko, E. & Gibson, E. (July 2011). Storage and computation in syntax: Evidence from relative clause priming. Talk at the 33rd Annual Meeting of the Cognitive Science Society, Boston, MA.
- Troyer, M.,** Fedorenko, E., & Gibson, E. (March 2009). Production priming of object- and subject-extracted relative clauses. Poster at the 22nd CUNY Conference on Human Sentence Processing, University of California--Davis, Davis, CA.

Invited talks and departmental presentation

- 2022 "Nuances of knowing: How subtle differences in knowledge may shape how the brain understands language." Invited talk, Osher Lifelong Learning Institute, Champaign, IL.
- 2022 "Nuances of knowing: What studying a fictional world can tell us about how brains create meaning from language in real-time." Invited talk at Electrifying Thoughts Seminar, University of California, San Diego, in association with the retirement of Professor Marta Kutas.
- 2022 "The electrical sorting hat: How differences in knowledge relate to neural processing during reading." Invited talk at the Psycholinguistics Group, Humboldt-Universität zu Berlin.
- 2022 "Using a fictional world to study the real-time dynamics of language comprehension." Talk, Cognitive Brown Bag, University of Illinois at Urbana-Champaign.
- 2022 "Nuances of knowing: Using a fictional world to study how the brain makes meaning during word-by-word reading." Invited talk, Psychology and Language Seminar, UCL.
- 2021 "Nuances of knowing: Using a fictional world to study how the brain makes meaning during word-by-word reading." Talk, Language Processing Brown Bag, University of Illinois at Urbana Champaign.
- 2021 "The electrical sorting hat: How differences in knowledge relate to neural processing during reading." Invited talk, Psychology and Neuroscience departments, Lawrence University.
- 2020 "Investigating how variation in knowledge influences the neural and temporal dynamics of language processing." Elevator pitch presented at First Annual Training Event, *Ensuring Full Literacy in a Multicultural and Digital World*.
- 2019 "Muggle or Magical?: Electrophysiological investigations of variation in the language-knowledge interface during reading." PhD Dissertation Defense, UCSD.
- 2017 "Harry Potter and the Chamber of *What?*: Brain potentials to congruous words are systematically related to knowledge." Talk, Center for Research in Language talk series, UCSD.
- 2016 "Harry Potter and the Chamber of *What?*: Real-time semantic access is a function of the individual's knowledge." Poster at the Frontiers of Innovation Scholars Program Symposium, UCSD.
- 2015 "Variability in semantic access during language comprehension: The role of prior knowledge." Third-year talk, Cognitive Science Department, UCSD.

- 2015 “Pronoun resolution is sensitive to the complexity of the antecedent: Evidence from ERPs.” Poster at the UCSD Graduate Student Association Travel Grant Symposium. *Best Poster Award Recipient*.
- 2014 “Conceptual elaboration facilitates retrieval in sentence processing.” Talk, Center for Research in Language talk series, UCSD.
- 2014 “Elaboration of concepts facilitates their retrieval in sentence processing.” Second-year Talk, Cognitive Science Department, UCSD.
- 2014 “Elaboration of concepts facilitates their retrieval in sentence processing.” Poster at the UCSD Cognitive Science Alumni Reunion.
- 2012 “Storage and computation in syntax: Evidence from relative clause priming.” Talk, Center for Research in Language talk series, UCSD.
- 2012 “Individual differences in sentence processing.” Talk, Language and Cognition talk series, Harvard University.
- 2011 “Investigating storage and computation in syntax using relative clause priming.” Invited talk, Perception, Cognition, and Development Brownbag, Cornell University.
- 2011 “Storage and computation in syntax: Evidence from relative clause priming.” Talk, Cog Lunch, MIT.

Teaching Experience and Training

- 2018-2019 Graduate Teaching Consultant, Engaged Teaching Hub, UCSD.
- Created content for and facilitated workshops aimed at supporting and improving teaching by graduate student teaching assistants and instructors.
 - Conducted one-on-one teaching consultations with graduate student teaching assistants and instructors.
 - Conducted mid-quarter student evaluations for Engaged Teaching Hub courses and undergraduate courses at UCSD.
- 2017 Instructor, COGS 101C, *Language*, UCSD.
- Designed and taught course with support from previous instructors and members of the Engaged Teaching Hub.
 - Conducted an informal teaching-as-learning project and found evidence that greater student attendance/participation during class related to gains on a content inventory conducted at the beginning and end of the course.
- 2016-2017 Pedagogical training, Engaged Teaching Hub (formerly Center for Teaching and Learning), UCSD.
- Completed *Teaching and Learning at the College Level* coursework in pedagogical training.
 - Complete 4-week course design studio as part of the Summer Graduate Teaching Scholars (SGTS) program.
 - Received peer feedback on teaching as instructor of record at UCSD.
- 2015-2016 Graduate Advocate, *Summer Training for Research in the Sciences Program (STARS)*, UCSD.
- Received weekly training in inclusive mentoring for students from diverse backgrounds.
 - Mentored 6 (2015) to 8 (2016) undergraduate students during an 8-week summer research program geared at providing research opportunities for students from underserved backgrounds.

- Facilitated workshops on career development, including applying for fellowships, scientific writing and presenting, and providing peer feedback.

2013-2016	Teaching Assistant, UCSD. COGS 101C, <i>Language</i> ; COGS 115, <i>Neural Development and Cognitive Change</i> ; COGS 109, <i>Modeling and Data Analysis</i> ; COGS 154, <i>Communication Disorders in Children and Adults</i> ; COGS 172, <i>Brain Disorders and Cognition</i> ; COGS 3, <i>Introduction to Computing</i> .
2009-2011	Teaching Assistant, MIT. 9.00, <i>Introduction to Psychology</i> ; 9.59, <i>Psycholinguistics</i> .
2005-2006	Undergraduate Teaching Instructor, Indiana University, Bloomington. COGS-Q 250, <i>Math and Logic for Cognitive Science</i> .

Guest Lectures (Undergraduate)

2020	“A brief intro to EEG and ERPs.” PSYC 3440, <i>Developmental Cognitive Neuroscience</i> , University of Western Ontario.
2018	“Building a human brain.” HDP 1, <i>Introduction to Human Development</i> , UCSD.
2018	“Real-time language processing in the brain.” LIGN 170, <i>Psycholinguistics</i> , UCSD.
2017	“Human brain development.” HDP 1, <i>Introduction to Human Development</i> , UCSD.
2017	“Language and the brain.” COGS 101C, <i>Language</i> , UCSD.
2016	“Event-related brain potentials.” COGS 1, <i>Introduction to Cognitive Science</i> , UCSD.
2015	“Language Disorders in Adults.” COGS 154, <i>Communication Disorders in Children and Adults</i> , UCSD.
2015	“Language: What we can learn from neuropsychology.” PSYC 120, <i>Learning and Cognition</i> , Holy Names University.
2015	“Language Disorders: Aphasia.” COGS 172, <i>Brain Disorders and Cognition</i> , UCSD.
2015	“Language Disorders: Laterality and Right-hemisphere Damage.” COGS 172, <i>Brain Disorders and Cognition</i> , UCSD.
2014	“Language development.” Cognitive Science COGS 154, <i>Communication Disorders in Children and Adults</i> , UCSD.
2014	“Language development: Innateness and critical periods.” COGS 101C, <i>Language</i> , UCSD.
2014	“Language development: Learning sounds and grammar.” COGS 101C, <i>Language</i> , UCSD.
2011	“Vision.” Brain & Cognitive Sciences 9.00, <i>Introduction to Psychology</i> , MIT.
2009	“Language Processing.” Discover Brain and Cognitive Science Freshman Pre-Orientation Program, MIT.
2009	“Speech.” Brain & Cognitive Sciences 9.59, <i>Psycholinguistics</i> , MIT.

Teaching Workshops (Graduate)

2019	“Teaching what you don’t know.” Workshop at Engaged Teaching Hub, UCSD.
2018, 2019	“Developing rubrics to assess student learning.” Workshop at Engaged Teaching Hub, UCSD.

Science Outreach

2022	Reading and Research Group Facilitator, Osher Lifelong Learning Institute, Champaign, IL
2018	Presenter, Teen STEAM (Science, Technology, Engineering, Arts, and Math) Café, Elementary Institute of Science, San Diego, CA
2015-2017	Organizing Committee, ComSciCon-SD (http://comscicon.com/comscicon-sandiego-2017)

- 2013-2017 Contributor, NeuWriteSD.org Blog (<https://neuwritesd.org/author/mltroyer/>)
2016-2017 Organizing Committee and Event Coordinator, Taste of Science, San Diego
2009-2011 Brain and Cognitive Sciences Outreach Committee, MIT

Academic Service

- 2020-2021 Next-Generation Scholar, SSHRC Partnership Grant Project Committee
Ensuring literacy in a multicultural and digital world
2016-2019 Coordinator, Center for Research in Language Talk Series, UCSD
2014-2016 Cognitive Science Interview Weekend Committee, UCSD
2014-2015 Co-Editor, Center for Research in Language Tech Reports, UCSD
2009-2011 Brain and Cognitive Sciences Graduate Student Interview Weekend Committee, MIT
2009-2010 Coordinator, Cog Lunch talk series, MIT
2009-2010 Brain and Cognitive Sciences Graduate Student Representative, MIT

Teaching Software

Virtual EEG: <http://virtualeeg.psych.indiana.edu>

Bootstrapping statistical software: <http://cognitrn.psych.indiana.edu/busey/homepage/Statistics.html/>

Ad Hoc Reviewing

Brain and Language; Cognitive Science; Cognitive Science Society Annual Meeting; Embodied and Situated Language Processing Conference; Journal of Memory and Language; Language, Cognition, and Neuroscience; Neuropsychologia; Quarterly Journal of Experimental Psychology; Nature Scientific Reports; Psychology and Aging

Academic Societies

Cognitive Neuroscience Society, Cognitive Science Society, Human Sentence Processing Society, Society for Neurobiology of Language, Society for Psychophysiological Research

References

Dr. Marta Kutas

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