Juliana Elizabeth Trach
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EDUCATION

PhD *(in progress)*	**Yale University** Psychology (Cognitive) Advisor: Dr. Sam McDougle	2020-present
M.Phil.	**Yale University** Psychology (Cognitive) Advisor: Dr. Sam McDougle	2023
M.S.	**Yale University** Psychology (Cognitive) Advisor: Dr. Sam McDougle	2022
Sc.B. *magna cum laude*	**Brown University** Cognitive neuroscience (with departmental honors), Advisors: Dr. Theresa Desrochers & Dr. William Heindel	2014-2018
Study abroad	**University of Barcelona** School of Psychology	Fall 2016

AWARDS

Neural Control of Movement Student Travel Award	2024
Wu Tsai Institute Travel Award	2023
Conference travel fellowship	2021-2024
National Science Foundation Graduate Research Fellowship *Resource scarcity as everyday cognitive load: Differential effects of cognitive load on learning across the socioeconomic status spectrum*	2020-2023
Magna Cum Laude	2018
Departmental honors	2018
Richard E. Whalen Award for Excellence in Undergraduate Research in Neuroscience and Behavioral Biology	2018
Sigma Xi Honors Society, Brown University chapter	2017-2018
Undergraduate Teaching and Research Award at Brown University	2017
U.S. Department of State, Congress-Bundestag Fellowship, Germany	2013-2014

RESEARCH EXPERIENCE

Lab Manager, Princeton Baby Lab *Princeton University,* Advisor: Dr. Casey Lew-Williams	2018-July 2020
Honors Student, Desrochers Lab	2017-2018

Brown University, Advisor: Dr. Theresa Desrochers

Research assistant, Badre Lab for Memory and Cognitive Control 2015-2016
Brown University, Advisor: Dr. David Badre

Research Assistant, Center for Brain and Cognition Fall 2016
Universitat Pompeu Fabra

Research Assistant, Rahnev Lab for Perception, Neuroimaging and Modeling Summer 2016
Georgia Institute of Technology, Advisor: Dr. Dobromir Rahnev

Research Assistant, Spanish Immersion Day Camp/Afterschool Program 2012-2015
University of Illinois, Urbana-Champaign, Advisor: Dr. Silvina Montrul

TEACHING EXPERIENCE

Teaching Fellow, Introduction to Psychology (PSYC110) Spring 2023
Yale University, Psychology department
Advisor: Dr. Stephanie Lazarro

Teaching Fellow, The Human Brain (PSYC160) Fall 2022
Yale University, Psychology department
Advisor: Dr. Gregory McCarthy

Teaching Fellow, Learning and Memory (PSYC376) Spring 2022
Yale University, Psychology department
Advisor: Dr. Samuel D. McDougle

Teaching Fellow, Statistics (PSYC200) Fall 2021
Yale University, Psychology department
Advisor: Dr. Dylan Gee

Teaching Assistant, Introductory Statistics Fall 2017
Brown University, CLPS department
Advisor: Dr. Kathryn Spoehr

Teaching Assistant, Intensive Beginning German Spring 2016
Brown University, German Department
Advisor: Dr. Jan Sokolosky

TEACHING TRAINING

Fundamentals of teaching workshop (4 sessions, 6hrs)
Teacher, mentor, role model: Who are you? (4 sessions, 6hrs)
Grading and values (4 sessions, 6hrs)
Mentorship in research lab settings (2 sessions, 3hrs)
Preparing the teaching portfolio (1 session, 1.5hrs)
Preparing the teaching statement (1 session, 1.5hrs)
Grading and rubrics (1 session, 1.5hrs)
Effective mentorship (1 session, 1hr)

INSTITUTIONAL SERVICE

MAPS mentor 2024-2025

Yale University

Colloquium Committee, Cognitive Psychology Area 2022-2024
Yale University

Student Coordinator, Current Works in Cognitive and Developmental Psychology Talk Series 2021-2022
Yale University

McDougal Center Fellow for Graduate Student Life, Arts and Culture 2021-2022
Yale University

WTI Summer Scholar mentor 2022
Yale University

Student Coordinator, Graduate Student Interviews 2021, 2023
Yale University

Yale Sneak Peek Mentor 2021-2024
Yale University

Graduate-Undergraduate Mentorship Initiative Advisor 2020-present
Yale University

Departmental Peer Advisor, Cognitive Neuroscience 2015-2018
Brown University, CLPS Department

Meiklejohn Peer Advisor 2015-2018
Brown University

Diversity and Inclusion Action Plan Committee Spring 2016
Brown University, CLPS Department

REFEREED MANUSCRIPTS

1. Yates, T.S., Fel, J., Choi, D., **Trach, J.E.,** Behm, L., Ellis, C.T., & Turk-Browne, N.B. (accepted). Hippocampal encoding of memories in human infants. *Science*.
2. **Trach, J.E.,** deBettencourt, M.T., Radulescu, A. & McDougle, S.D. (in press). Rewards transiently and automatically enhance sustained attention. *Journal of Experimental Psychology: General*. [preprint]
3. Lacal, I., Das, A., Logiaco, L., Molano-Mazon, M., Schwaner, M.J., & **Trach, J.E.** (2024). Emerging perspectives for the study of the neural basis of motor behaviour. *European Journal of Neuroscience, 60*, 6342-6356. [paper]
4. Piazza, E., Cohen, A., **Trach, J.E.,** and Lew-Williams, C. (2021). Neural synchrony predicts children's learning of novel words. *Cognition*, 214. [paper]
5. **Trach, J.E.,** McKim, T.H., and Desrochers, T.M. (2021). Abstract sequential control is facilitated by practice and embedded motor sequences, *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *47*(10), 1638-1659. [paper]

MANUSCRIPTS UNDER REVISION / IN PREPARATION

1. **Trach, J.E.** & McDougle, S.D. (in revision) Structure dynamics of hierarchical action selection. *Nature Human Behavior*.
2. Behm, L., Yates, T.S., **Trach, J.E.,** Choi, D., Du, H., Osumah, C., Deen, B., Kosakawski, H.L., Chen, E.M., Kamps, F.S., Olson, H.A., Ellis, C.T., Saxe, R., Turk-Browne, N.B. (in preparation). Data retention in awake infant fMRI: Lessons from more than 750 scanning sessions.

REFEREED CONFERENCE PROCEEDINGS

1. **Trach, J.E.** & McDougle, S.D. (2024). Rapid parallel processing dynamics during hierarchical category decisions. *Proceedings of the 46th Annual Conference of the Cognitive Science Society*.
2. **Trach, J.E.** and McDougle, S.D. (2023). Structured dynamics of hierarchical action selection. *Proceedings of the 45th Annual Conference of the Cognitive Science Society*.
3. **Trach, J.E.** and McDougle, S.D. (2022). Climbing the tree: Structured hierarchical representations in visuomotor maps. *Proceedings of the 44th Annual Conference of the Cognitive Science Society*.

CONFERENCE PRESENTATIONS

TALKS

1. **Trach, J.E.,** Yates, T.S., Choi, D., Behm, L., Ellis, C.T., McDougle, S.D., & Turk-Browne, N.B. (April 2023). Striatal and cerebellar involvement in reinforcement learning in the human infant brain. *NCM*. Dubrovnik, Croatia.
2. **Trach, J.E.** & McDougle, S.M. (July 2023). Structured dynamics of hierarchical action selection. *CogSci*, Sydney, Australia.
3. **Trach, J.E.** & McDougle, S.M. (September 2022). Climbing the tree: Structured hierarchical representations in visuomotor maps. *MAMM,* New York, NY.
4. **Trach, J.E.** & McDougle, S.M. (July/August 2022). Climbing the tree: Structured hierarchical representations in visuomotor maps. *CogSci*, Toronto, ON. (Talk)

POSTERS

1. **Trach, J.E.** & McDougle, S.D. (October 2024). Exploring nonmotor prediction errors in the human cerebellum. *SfN*, Chicago, IL.
2. **Trach, J.E.,** Ingram, M., & McDougle, S.D. (July 2024). Rapid parallel processing dynamics during hierarchical category decisions. *CogSci,* Rotterdam, Netherlands.
3. **Trach J.E.,** deBettencourt, M.T., Radulescu, A. & McDougle, S.D. (April 2024). Reward feedback enhances sustained attention on short timescales. *NCM*, Dubrovnik, Croatia.
4. Adanri, T.A., **Trach, J.E.,** & McDougle, S.D. (November 2023). Compression of structured cognitive representations with extensive practice. *SfN*, Washington, DC.
5. **Trach, J.E.**, Yates, T.S., Choi, D., Behm, L., Ellis, C.T., McDougle, S.D., & Turk-Browne, N.B. (November 2023). Striatal involvement in reward processing in the human infant brain. *SfN*, Washington, DC.

6. **Trach, J.E.** & McDougle, S.M. (April 2023). Behavioral dynamics of hierarchical action selection. *NCM*, Victoria, BC.
7. **Trach, J.E.**, deBettencourt, M.T., Radulescu, A. & McDougle, S.D. (November 2022). Reward prediction error modulates sustained attention. *SfN,* San Diego, CA.
8. Choi, D., **Trach, J.E.**, Yates, T., Ellis, C., and Turk-Browne, N. (2022) Neural retrieval of infant memories during childhood. *SfN,* San Diego, CA.
9. **Trach, J.E.**, Burde, J., deBettencourt, M.T., Radulescu, A. & McDougle, S.D. (June 2022) Reward prediction error modulates sustained attention. RLDM, Brown University.
10. **Trach, J.E.** & Desrochers, T.M. (2018, January). Practice and motor sequences facilitate the execution of abstract task sequences. Poster presented at the Ivy League Undergraduate Research Symposium at the University of Pennsylvania.
11. **Trach, J.E.** & Desrochers, T.M. (2017, November). Testing the effect of practice and motor learning on abstract sequence execution. Poster presented at the Association for Women in Mathematics Poster Symposium at Brown University.
12. **Trach, J.E.** & Desrochers, T.M. (2017, November). Testing the effect of practice and motor learning on abstract sequence execution. Poster presented at the Epsilon Alpha Mu Honor Society at Harvard University.
13. **Trach, J.E.** & Desrochers, T.M. (2016, August). Preliminary results: Testing the effect of practice and motor learning on abstract sequence execution. Poster presented at the Summer Research Symposium at Brown University.

OTHER TALKS

1. *Rapid parallel processing dynamics during hierarchical category decisions*. Desrochers Lab, Brown University, 2024.
2. *Assessing the dynamics of visuomotor expertise*, Current works in cognitive psychology, Yale University, 2024.
3. *Cognitive-motor interactions during structured action selection*, CoCoA Workshop, Princeton University, 2024.
4. *Striatal and cerebellar involvement during reinforcement learning in the human infant brain*, 2024, Scaffolding of Cognition Lab, Stanford University, 2024.
5. *Behavioral dynamics of hierarchical decision making,* Current works in cognitive psychology, Yale University, 2023.
6. *Structured dynamics of hierarchical action selection*, BLAM Lab, Johns Hopkins University, 2023.
7. *Structured dynamics of hierarchical action selection*, Graduate Student Interviews Student Symposium, Yale University, 2023.
8. *Abstract sequential task control is facilitated by practice and embedded motor sequences*, Desrochers Lab Meeting, December 2020.