

# George Kachergis

Research Scientist  
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## Education & Professional Experience

- Aug 24–present: Research Scientist, Arizona State University
- Oct 2023–Aug 2024: Research Scientist, Language and Cognition Lab, PI: Michael C. Frank, Stanford University
- June 2022–September 2023: Senior Research Scientist, Skillprint, Inc.
- Sept 2018–June 2023: Research Scientist, Language and Cognition Lab, PI: Michael C. Frank, Stanford University
- 2016–2018: Assistant Professor, Department of Artificial Intelligence and Donders Institute for Brain, Cognition, and Behaviour, Radboud University
- 2015–2016: Postdoctoral Researcher on active sensemaking, New York University, PIs: Todd Gureckis and Marjorie Rhodes, Varieties of Understanding Project
- 2013–2014: Postdoctoral Researcher on knowledge representation, Leiden University, Advisor: Bernhard Hommel, RoboHow Project
- Dec 2012: Ph.D. Indiana University, Department of Psychological and Brain Sciences and Cognitive Science Program. Advisors: Richard M. Shiffrin and Chen Yu.
- 2011: Probabilistic Models of Cognition Summer School, Institute for Pure and Applied Mathematics, UCLA
- 2007: B.A. Cognitive Studies, Carleton College *Magna cum laude* with distinction.
- 2007: B.A. Computer Science, Carleton College *Magna cum laude*.

## Selected Awards

- **Diversity and Social Inequality Award, Cognitive Science Society, 2022**
- **Semi-finalist**, Global EdTech Startup Awards (egoTeach), *November, 2017*
- **Irving J. Saltzman Award for Outstanding Graduate Achievement**, Indiana University Psychology Department, *2015*
- **Robert J. Glushko Dissertation Prize** for outstanding interdisciplinary work (\$10,000), *2013*
- **Marr Prize for Best Student Paper, Cognitive Science Society, 2012**

- **Best Paper: Experiment Combined with Computational Model, International Conference on Development and Learning-EpiRob, 2012**

## Publications

### Journal Articles

- Frank, M. C., Baumgartner, H., Braginsky, M., Kachergis, G., ..., Cubillo, A. (submitted). Learning Variability Network Exchange (LEVANTE): A global framework for measuring children's learning variability through collaborative data sharing. *Child Development*. Preprint: <https://osf.io/namx2/>
  - **Kachergis, G.**, Braginsky, M. and Frank, M. C. (in preparation). *A large-scale comparison of cross-situational word learning models*. Preprint: <https://psyarxiv.com/4um9k>
  - **Kachergis, G.**, Hembacher, E., Cristiano, V., Zhang, H. V., Frank, M. C. (in preparation). *Understanding the impacts of video-guided activities on parent-child interaction*. Preprint: <https://psyarxiv.com/dmeza/>
  - Blokpoel, M., Dingemanse, M., **Kachergis, G.**, Bögels, S., Toni, I., van Rooij, I., and the CABB team. (in revision). *Pragmatic communicators can overcome asymmetry by exploiting ambiguity*. *Cognitive Science*. Preprint: <https://osf.io/q56xs>
1. Tamis-LeMonda, **Kachergis, G.**, ..., Yurovsky, D. (2024). *Comparing apples to manzanas and oranges to naranjas: A new measure of English-Spanish vocabulary for dual language learners*. *Infancy*. doi: 10.1111/inf.12571
  2. Bang, J. Y., **Kachergis, G.**, Weisleder, A., and Marchman, V. A. (2023). *Evaluating the feasibility of an automated classifier for target-child-directed speech from LENA recordings*. *Learning Development Research*.
  3. Long, B. Goodin, S., **Kachergis, G.**, Marchman, V. A., Radwan, S., Sparks, R., Xiang, V., Zhuang, C., Hsu, O., Newman, B., Yamins, D. L. K., Frank, M. C. (2023). *The BabyView camera: Designing a new head-mounted camera to capture children's early social and visual environment*. *Behavior Research Methods*.
  4. **Kachergis, G.**, Francis, N., and Frank, M. C. (2022). *Estimating demographic bias on tests of children's early vocabulary*. *Topics in Cognitive Science*.
  5. **Kachergis, G.**, Tan, A. W. M., Frank, M. C. (2022). *Plurality is a good start, but it's time for unification*. (Comment on Li & Xu, 2022). *Language Learning*.
  6. Zettersten, M., Yurovsky, D., ..., **Kachergis, G.**, ... Bergey, C. A., and Frank, M. C. (2022). *Peekbank: An open, large-scale repository for developmental eye-tracking data of children's word recognition*. *Behavior Research Methods*. doi: 10.3758/s13428-022-01906-4.
  7. Tsui, A. S. M., Carstensen, A., **Kachergis, G.**, ..., Frank, M. C. (registered report accepted pending data collection). *Exploring variation in infants' preference for infant-directed speech: Evidence from a multi-site study in Africa*. *Developmental Science*. Preprint: <https://osf.io/fqp4b>

8. Visser, I., Geambasu, A., Bergmann, C., Byers-Heinlein, K., Doyle, F. L., Hannon, E., Johnson, S., **Kachergis, G.**, Kosie, J., ... and Levelt, C. (registered report accepted pending data collection). *ManyBabies3: A multi-lab study of infant algebraic rule learning*. Preprint: <https://osf.io/wm3u6/>
9. Long, B., Frank, M. C., Lai, E., Chan, P., Wong, P., and **Kachergis, G.** (registered report accepted pending data collection). *Consistency and variability between cultures during toddlers' naturalistic play*. *Infancy*. Preprint: <https://psyarxiv.com/jqwr5/>
10. Sen, D., de Kleijn, R., and **Kachergis, G.** (2022). *Behavioral Optimization in a Robotic Serial Reaching Task using Predictive Information*. *IEEE Transactions on Cognitive and Developmental Systems*. doi: 10.1109/TCDS.2022.3176459.
11. Long, B., **Kachergis, G.**, Agrawal, K., and Frank, M. C. (2022). *A longitudinal analysis of the social information in infants' naturalistic visual experience using automated detections*. *Developmental Psychology*. Preprint: <https://psyarxiv.com/z7tdg/>
12. **Kachergis, G.**, Marchman, V. A., Dale, P., Mankewitz, J., Frank, M. C. (2022). *An Online Computerized Adaptive Test (CAT) of Children's Vocabulary Development in English and Mexican Spanish*. *Journal of Speech, Language, and Hearing Research*. Preprint: <https://psyarxiv.com/5ftsu>
13. de Kleijn, R., Sen, D., and **Kachergis, G.** (2022). *A critical period for robust curriculum-based deep reinforcement learning of sequential action in a robot arm*. *Topics in Cognitive Science*.
14. **Kachergis, G.**, Marchman, V. A., and Frank, M. C. (2021). *Toward a "Standard Model" of Early Language Learning*. *Current Directions in Psychological Science*. Preprint: <https://psyarxiv.com/yhrb4>
15. Mahowald, K., **Kachergis, G.**, and Frank, M. C. (2020). *What counts as an exemplar model, anyway? A commentary on Ambridge (2020)*. *First Language*. doi: 10.1177/0142723720905920.
16. de Kleijn, R., van Es, L., **Kachergis, G.**, and Hommel, B. (2018). *Anthropomorphization of artificial agents leads to fair and strategic, but not altruistic behavior*. *International Journal of Human-Computer Studies*.
17. **Kachergis, G.** (2018). *Word learning: Associations or hypothesis testing?* *Current Biology*. 28(9), R555-R557. doi: 10.1016/j.cub.2018.02.077.
18. de Kleijn, R., **Kachergis, G.**, and Hommel, B. (2018). *Predictive movements and human reinforcement learning of sequential action*. *Cognitive Science*. doi: 10.1111/cogs.12599.
19. **Kachergis, G.**, Rhodes, M., and Gureckis, T. (2017). *Desirable difficulties in the development of active inquiry skills*. *Cognition*. 166, 407–417. doi: 10.1016/j.cognition.2017.05.021.
20. **Kachergis, G.** and Yu, C. (2017). *Observing and modeling developing knowledge and uncertainty during cross-situational word learning*. *IEEE Transactions on Cognitive and Developmental Systems*. 10(2), 227–236. doi: 10.1109/TCDS.2017.2735540.
21. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2016). *A bootstrapping model of frequency and contextual diversity effects in word learning*. *Cognitive Science*. 41(3), 590–622. doi: 10.1111/cogs.12353.

22. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2014). *Cross-situational word learning is both implicit and strategic*. *Frontiers in Cognitive Science*. doi: 10.3389/fpsyg.2014.00588
23. **Kachergis, G.**, Wyatte, D., O'Reilly R. C., de Kleijn, R., and Hommel, B. (2014). *A continuous time neural model for sequential action*. *Philosophical Transactions of the Royal Society B*, 369: 20130623.
24. de Kleijn, R., **Kachergis, G.**, and Hommel, B. (2014). *Everyday robotic action: Lessons from human action control*. *Frontiers in Neurorobotics*. doi: 10.3389/fnbot.2014.00013
25. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2013). *Actively learning object names across ambiguous situations*. *Topics in Cognitive Science*, 5(1), 200–213.
26. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2012). *An Associative Model of Adaptive Inference for Learning Word-Referent Mappings*. *Psychonomic Bulletin & Review*, 19(2), 317–324.
27. Cox, G., **Kachergis, G.**, Recchia, G., and Jones, M. N. (2011). *Towards a scalable holographic word-form Representation*. *Behavior Research Methods*, 43(3), 602–615.

## Refereed Conference Papers and Book Chapters

28. **Kachergis, G.\***, Tan, A. W. M.\*, Marchman, V. A., Dale, P. S., and Frank, M. C. (2023). *Measuring children's early vocabulary in low-resource languages using a Swadesh-style word list*. *Proceedings of the 45th Annual Conference of the Cognitive Science Society*.
29. Dale, P. S. and **Kachergis, G.** (2023). Online computerized adaptive tests of children's vocabulary (CDI-CAT). In Marchman, V. A., Dale, P. S., and Fenson, L. (Eds.) *MacArthur-Bates Communicative Development Inventories User's Guide and Technical Manual (3rd Ed.)*. Brookes Publishing. ISBN: 978-1-68125-707-5
30. Dale, P. S. and **Kachergis, G.** (2023). The CDI-III. In Marchman, V. A., Dale, P. S., and Fenson, L. (Eds.) *MacArthur-Bates Communicative Development Inventories User's Guide and Technical Manual (3rd Ed.)*. Brookes Publishing. ISBN: 978-1-68125-707-5
31. **Kachergis, G.**, Francis, N., and Frank, M. C. (2022). *Estimating demographic bias on tests of children's early vocabulary*. *Proceedings of the 44th Annual Conference of the Cognitive Science Society*. (**Diversity and Inclusion Prize Winner**)
32. **\*Kachergis, G.**, \*Loukatou, G., and Frank, M. C. (2022). *Identifying the distributional sources of children's early vocabulary*. *Proceedings of the 44th Annual Conference of the Cognitive Science Society*.
33. Bang, J. Y., **Kachergis, G.**, Weisleder, A., and Marchman, V. A. (2022). *An Automated Classifier for Child-Directed Speech from LENA Recordings*. *Proceedings of the 46th annual Boston University Conference on Language Development (BUCLD)*, ed. Ying Gong and Felix Kpogo, pp. 48-61. Somerville, MA: Cascadilla Press.

34. **Kachergis, G.**, Radwan, S., Long, B., Fan, J. E., Lingelbach, M., Bear, D., Yamins, D. and Frank, M. C. (2021). *Predicting children's and adults' preferences in physical interactions via physics simulation*. Proceedings of the 43rd Annual Conference of the Cognitive Science Society.
35. Long, B., **Kachergis, G.**, Bhatt, N., and Frank, M. C. (2021). *Characterizing the object categories two children see and interact with in a dense dataset of naturalistic visual experience*. Proceedings of the 43rd Annual Conference of the Cognitive Science Society. Preprint: <https://psyarxiv.com/nv47t/>
36. Zettersten, M., Bergey, C. A., .. **Kachergis, G.**, Lewis, M., .. and Frank, M. C. (2021). *Peekbank: Exploring children's word recognition through an open, large-scale repository for developmental eye-tracking data*. Proceedings of the 43rd Annual Conference of the Cognitive Science Society. Preprint: <https://psyarxiv.com/ep693/>
37. Long, B., **Kachergis, G.**, Agrawal, K., and Frank, M. C. (2020). *Detecting social information in a dense database of infants' natural visual experience*. Proceedings of the 42nd Annual Conference of the Cognitive Science Society. Preprint: <https://psyarxiv.com/z7tdg/>
38. Carstensen, A., **Kachergis, G.**, Hermalin, N., and Regier, T. (2019). *"Natural concepts" revisited in the spatial-topological domain: Universal tendencies in focal spatial relations*. Proceedings of the 41st Annual Conference of the Cognitive Science Society.
39. Grimmick, C., Gureckis, T. M., and **Kachergis, G.** (2019). *Evidence of error-driven cross-situational word learning*. Proceedings of the 41st Annual Conference of the Cognitive Science Society.
40. **Kachergis, G.**, Gureckis, T. M., and Rhodes, M. (2019). *Exploring informal science interventions to promote children's understanding of natural categories*. Proceedings of the 41st Annual Conference of the Cognitive Science Society.
41. Oudeyer, P.-Y., **Kachergis, G.**, and Schueller, W. (2019). *Computational and robotic models of early language development: A review*. In Handbook on Language Development, ed. Horst, J. and von Koss Torkildsen, J. Routledge.
42. **Kachergis, G.** (2018). *Leveraging adaptive games to learn how to help children learn effectively*. IEEE Cognitive and Developmental Systems (CDS) Newsletter, 15(1).
43. **Kachergis, G.**, Kielstra, J., Bokkers, L., Persad, B., and Molenaar, I. (2018). *Detecting reading strategies during task-oriented reading: Building an automated classifier*. In Workshop on Personalization Approaches in Learning Environments at AIED 2018.
44. Kottke, D., Calma, A., Huseljic, D., Sandrock, C., **Kachergis, G.**, and Sick, B. (2018). *The other human in the loop: A pilot study to find selection strategies for active learning*. 2018 International Joint Conference on Neural Networks (IJCNN).
45. de Kleijn, R., **Kachergis, G.**, and Hommel, B. (2018). *IQ and working memory predict plan-based sequential action learning*. Proceedings of the 40th Annual Conference of the Cognitive Science Society.

46. de Kleijn, R., **Kachergis, G.**, and Hommel, B. (2018). *Optimized behavior in a robot model of sequential action. Proceedings of the 40th Annual Conference of the Cognitive Science Society.*
47. Adams, K. and **Kachergis, G.** (2017). *Executive function and attention predicts preschoolers' active category learning in 1D and 2D Spaces. Proceedings of the 39th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
48. \*Adams, K., \***Kachergis, G.**, and Markant, D. (2017). *Children's familiarity preference in self-directed study improves recognition memory. Proceedings of the 39th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society. \*Equal contribution.
49. Hidaka, S., Torii, T., and **Kachergis, G.** (2017). *Leveraging mutual exclusivity for faster cross-situational word learning: A theoretical analysis. Proceedings of the 39th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
50. Hidaka, S., Torii, T., and **Kachergis, G.** (2017). *Quantifying the impact of active choice in word learning. Proceedings of the 39th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
51. **Kachergis, G.**, Rhodes, M., and Gureckis, T. (2016). Desirable difficulties in the development of active inquiry skills. *Proceedings of the 38th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
52. **Kachergis, G.**, de Kleijn, R., and Hommel, B. (2016). A Dream Model: Reactivation and re-encoding mechanisms for sleep-dependent memory consolidation. *Proceedings of the 38th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
53. **Kachergis, G.**, Berends, F., de Kleijn, R., and Hommel, B. (2016). Human reinforcement learning of sequential action. *Proceedings of the 38th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
54. de Kleijn, R., **Kachergis, G.**, and Hommel, B. (2015). Robotic action control: On the crossroads of cognitive psychology and robotics. In H. Samani (Ed.), *Cognitive Robotics*. Taylor & Francis.
55. **Kachergis, G.** and Yu, C. (2014). Continuous measure of word learning supports associative model. *IEEE Conference on Development and Learning-EpiRob 2014.*
56. **Kachergis, G.**, Berends, F., de Kleijn, R. and Hommel, B. (2014). Reward effects on sequential action learning in a trajectory serial reaction time task. *IEEE Conference on Development and Learning-EpiRob 2014.*
57. **Kachergis, G.**, Berends, F., de Kleijn, R. and Hommel, B. (2014). Trajectory effects in a novel serial reaction time task. *Proceedings of the 36th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.
58. **Kachergis, G.**, Yu, C. and Shiffrin, R. M. (2014). Developing semantic knowledge through cross-situational learning. *Proceedings of the 36th Annual Conference of the Cognitive Science Society.* Austin, TX: Cognitive Science Society.

59. **Kachergis, G.**, Cox, G. E., and Shiffrin, R. M. (2013). The Effects of Repeated Sequential Context on Recognition Memory. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
60. **Kachergis, G.** and Yu, C. (2013). More Naturalistic Cross-situational Word Learning. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
61. Cox, G. E., **Kachergis, G.**, and Shiffrin, R. M. (2013). Similarity and Strategic Effects in Recognition Memory. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
62. Kievit-Kylar, B., Kachergis, G., and Jones, M. N. (2013). Naturalistic Word-Concept Pair Learning With Semantic Spaces. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.
63. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2012). Cross-situational Word Learning is Better Modeled by Associations than Hypotheses. *IEEE Conference on Development and Learning-EpiRob 2012*. **Best Experiment Combined with Computational Model** .
64. **Kachergis, G.** (2012). *Learning Words with Domain-General Associative Learning Mechanisms*. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 533-538). Austin, TX: Cognitive Science Society.
65. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2012). Actively Learning Nouns Across Ambiguous Situations. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 527-532). Austin, TX: Cognitive Science Society.  
**Marr Prize Winner**
66. Hendrickson, A. T. **Kachergis, G.**, Fausey, C., and Goldstone, R. L. (2012). Re-learning labeled categories reveals structured representations. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 1668-1673). Austin, TX: Cognitive Science Society.
67. Cox, G. E., **Kachergis, G.**, and Shiffrin, R. M. (2012). Gaussian Process Regression for Trajectory Analysis. In N. Miyake, D. Peebles, & R. P. Cooper (Eds.), *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 1440-1445). Austin, TX: Cognitive Science Society.
68. **Kachergis, G.**, Recchia, G., and Shiffrin, R. M. (2011). Adaptive Magnitude and Valence Biases in a Dynamic Memory Task. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 819-824). Austin, TX: Cognitive Science Society.
69. **Kachergis, G.**, Cox, G. E., and Jones, M. N. (2011). OrBEAGLE: Integrating Orthography into a Holographic Model of the Lexicon. *21st Annual International Conference on Artificial Neural Networks*, Espoo, Finland. *June 2011*.

70. Trueblood, J. S., **Kachergis, G.**, and Kruschke, J. K. (2011). A Cue Imputation Bayesian Model of Information Aggregation. In L. Carlson, C. Hölscher, & T. Shipley (Eds.), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society* (pp. 1298-1303). Austin, TX: Cognitive Science Society.
71. Gangwani, T., **Kachergis, G.**, and Yu, C. (2010). Simultaneous Cross-situational Learning of Category and Object Names. In S. Ohlsson & R. Catrambone (Eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 1595-1600). Austin, TX: Cognitive Science Society.
72. Hendrickson, A. T., **Kachergis, G.**, Gureckis, T. M., and Goldstone, R. L. (2010). Is categorical perception really verbally mediated perception? In S. Ohlsson & R. Catrambone (Eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 1216-1221). Austin, TX: Cognitive Science Society.
73. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2010). Cross-Situational Statistical Learning: Implicit or Intentional? In S. Ohlsson & R. Catrambone (Eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 2362-2367). Austin, TX: Cognitive Science Society.
74. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2010). Adaptive Constraints and Inference in Cross-Situational Word Learning. In S. Ohlsson & R. Catrambone (Eds.), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society* (pp. 2464-2469). Austin, TX: Cognitive Science Society.
75. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2009). Frequency and Contextual Diversity Effects in Cross-Situational Word Learning. In N.A. Taatgen & H. van Rijn (Eds.), *Proceedings of the 31st Annual Conference of the Cognitive Science Society* (pp. 2220-2225). Austin, TX: Cognitive Science Society.
76. **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2009). Temporal Contiguity in Cross-Situational Statistical Learning. In N.A. Taatgen & H. van Rijn (Eds.), *Proceedings of the 31st Annual Conference of the Cognitive Science Society* (pp. 1704-1709). Austin, TX: Cognitive Science Society.
77. Barbella, D., **Kachergis, G.**, Liben-Nowell, D., Sallstrom, A., and Sowell, B. Depth of Field and Cautious-Greedy Routing in Social Networks. *18th International Symposium on Algorithms and Computation*, Sendai, Japan. 17 December 2007.

## Thesis

- Mechanisms for Cross-Situational Learning of Word-Referent Mappings: Empirical and Modeling Evidence. (winner of Glushko Prize). Ph.D. Advisory Committee: Richard M. Shiffrin, Michael N. Jones, John Kruschke, Robert Goldstone, Chen Yu. December, 2012.

## Outreach

- Kachergis, G. *Video Games and Personality Traits: A Deep Dive into the Science of Gaming Preferences*. Game Developer online publication. May 04, 2023



- Kachergis, G. Creating a Knowledge Mosaic: GPT4's self-understanding, views on human cognition, and steps toward responsible human-AI collaboration. Medium online publication. *April 5, 2023.*
- Kachergis, G. *The Rise-and Dangers-of Personal Digital Assistants.* Chatbots Life online publication. *October 21, 2017.*
- Kachergis, G. and van Gerven, M. *De impact van neurale netwerken op taal- en spraaktechnologie.* DIXIT magazine. *December, 2017.*
- Kachergis, G. *Translating Cognitive Science to EdTech: Searching for Impact.* Thinking about Thinking blog. *July, 2016.*

## Selected Conference Presentations

- **Kachergis, G.** (2023). *Using mobile game telemetry to assess cognitive skills and traits.* Presented at the *Video games as a path to a contextualized cognitive science* at the 45th Annual Conference of the Cognitive Science Society.
- Bang, J., **Kachergis, G.**, Weisleder, A., and Marchman, V. (2021). *An automated classifier for child-directed speech from LENA recordings.* Presented at the 46th Boston University Conference on Language Development, Boston, MA.
- **Kachergis, G.**, Radwan, S., Holdaway, C., Bear, D. M., Long, B., Yamins, D. L. K., and Frank, M. C. (2021). *Modeling developmental changes in curiosity about physical interactions.* Presented virtually at the Minds at Play Workshop at the 43rd Annual Conference of the Cognitive Science Society.
- **Kachergis, G.** and Frank, M. C. (2021). *A large-scale comparison of cross-situational word learning models.* Poster presented virtually at the 43rd Annual Conference of the Cognitive Science Society. Preprint: <https://psyarxiv.com/4um9k>
- Yi, G., Carstensen, A., **Kachergis, G.**, and Frank, M. C. (2021). *Adaptive games for education: Studying engagement and performance of active learners.* Poster presented virtually at the Society for Research in Child Development.
- **Kachergis, G.**, Marchman, V., Dale, P. S., Mehta, H., Mankewitz, J., and Frank, M. C. (2021). *An online Computerized Adaptive Test (CAT) of children's vocabulary development in English and Mexican Spanish.* Poster presented virtually at the Society for Research in Child Development.
- Long, B., **Kachergis, G.**, Agrawal, K., and Frank, M. C. (2020). *Detecting social information in a dense database of infants' natural visual experience.* Talk presented virtually at the 42nd Annual Conference of the Cognitive Science Society.
- Bang, J., Weisleder, A., **Kachergis, G.**, Marchman, V., and Fernald, A. (2020). *Investigating the features of child-directed versus overheard speech in all-day recordings of Spanish-speaking families.* Poster presented virtually at the International Congress of Infant Studies.

- **Kachergis, G.**, Long, B., Agrawal, K., and Frank, M. C. (2020). *Automatically detecting children's evolving visual access to social information*. In Symposium on Embracing new technologies to quantify early learning environments at the virtual International Congress of Infant Studies.
- **Kachergis, G.**, Fan, J., Haber, N., Long, B., Wong, P., Yamins, D., and Frank, M. C. (2019). *Investigating the development of exploratory play in infants and machines*. In Workshop on Guided Playful Learning at the 41st Annual Meeting of the Cognitive Science Society, Montreal, CA.
- Portelance, E., **Kachergis, G.**, and Frank, M.C. (2019). *Comparing memory-based and neural network models of early syntactic development*. Poster presented at the 44th Boston University Conference on Language Development, Boston, MA.
- Adams, K., **Kachergis, G.**, Gureckis, T., and Raver, C. (2019). *Examining individual differences in preschoolers' active learning*. Presented at the Society for Research on Child Development.
- **Kachergis, G.**, Gureckis, T., and Rhodes, M. (2019). *Exploring informal science interventions to promote children's understanding of natural categories*. Society for Philosophy and Psychology (SPP), San Diego, CA.
- Adams, K., **Kachergis, G.**, and Goulart de Lucena, H. (2018). *A Suite of Adaptive Games for Self-directed Literacy and Numeracy Education*. Poster presented at the 40th Annual Meeting of the Cognitive Science Society, Madison, WI.
- **Kachergis, G.**, Tubridy, S., and Gureckis, T. (2016). *Predictable stimulus onsets improve memory*. Poster presented at the 38th Annual Meeting of the Cognitive Science Society, Philadelphia, PA.
- **Kachergis, G.**, Rhodes, M., and Gureckis, T. (2015). Understanding developmental bottlenecks in active inquiry. Poster presented at the Annual Meeting of the Cognitive Development Society. Columbus, OH. *October 2015*.
- **Kachergis, G.**, Rhodes, M., and Gureckis, T. (2015). *Understanding Developmental Bottlenecks in Active Inquiry*. Poster presented at the 37th Annual Meeting of the Cognitive Science Society, Pasadena, CA. *July 2015*.
- **Kachergis, G.**, de Kleijn, R., and Hommel, B. (2015). Should androids dream of electric sheep? Mechanisms for sleep-dependent memory consolidation. *International Conference on Cognitive Modeling*. *April 2015*.
- **Kachergis, G.**, de Kleijn, R., and Hommel, B. *A Spiking Neural Model for Sequential Action Control*. 14th Annual Summer Interdisciplinary Conference, Cortina, Italy. *26 July 2013*.
- **Kachergis, G.** and Hidaka, S. *Towards a Cognitive Bayesian Model of Word Learning*. 46th Annual Meeting of the Society for Mathematical Psychology, Berlin, Germany. *August 7, 2013*.
- Cox, G. E., **Kachergis, G.** and Shiffrin, R. M. *Perceptual Similarity, Encoding Strategy, and Decision Dynamics in Recognition Memory*. 46th Annual Meeting of the Society for Mathematical Psychology, Berlin, Germany. *August 6, 2013*.

- Brown, S., **Kachergis, G.**, Donkin, C., Heathcote, A., Rae, B. *How do people make fast decisions?*. 45th Annual Meeting of the Society for Mathematical Psychology, Columbus, OH. *July 21, 2012.*
- **Kachergis, G.** (2012). *Learning Words with Domain-General Associative Learning Mechanisms*. 34th Annual Meeting of the Cognitive Science Society, Sapporo, Japan. *August 2012.*
- **Kachergis, G.**, Yu, C., and Shiffrin, R. M. (2012). *Actively Learning Nouns Across Ambiguous Situations*. 34th Annual Meeting of the Cognitive Science Society, Sapporo, Japan. *August 2012.*
- **Kachergis, G.**, Cox, G. E., Shiffrin, R. M. *Dynamic Effects of Perceptual and Categorical Similarity on Recognition Memory*. Poster presented at the Context and Episodic Memory Symposium, Bloomington, IN. *May 10, 2012.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *Modeling Cross-situational Word Learning: Hypotheses or Associations?*. Midwest Cognitive Science Conference, Bloomington, IN. *May 7, 2012.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *Active Cross-situational Statistical Word Learning*. Poster presented at the 33rd Annual Meeting of the Cognitive Science Society, Boston, MA. *July 2011.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *An Associative Model of Inference in Statistical Word Learning*. 44th Annual Meeting of the Society for Mathematical Psychology, Boston, MA. *July 2011.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *Modeling the Acquisition of the Mental Lexicon*. 43rd Annual Meeting of the Society for Mathematical Psychology, Portland, OR. *August 2010.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *Modeling Frequency and Context Effects in Statistical Word Learning*. 42nd Annual Meeting of the Society for Mathematical Psychology, Amsterdam, the Netherlands. *August 2009.*
- Gangwani, T., **Kachergis, G.**, Yu, C. *Simultaneous Noun and Category Learning via Cross-Situational Statistics*. 31st Annual Meeting of the Cognitive Science Society, Amsterdam, the Netherlands. *July 2009.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *The Semantics of Eye Movements in Cross-Situational Statistical Word Learning*. 41st Annual Meeting of the Society for Mathematical Psychology, Washington, D.C. *27 July 2008.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *Temporal Continuity in Cross-Situational Statistical Learning*. 30th Annual Meeting of the Cognitive Science Society, Washington, D.C. *25 July 2008.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *The Automaticity of Statistical Word Learning*. 30th Annual Meeting of the Cognitive Science Society, Washington, D.C. *25 July 2008.*
- **Kachergis, G.**, Shiffrin, R. M. *The Effects of Repeated Sequential Context on Recognition*. 7th Annual Summer Interdisciplinary Conference, Madonna di Campiglio, Italy. *10 July 2008.*
- **Kachergis, G.**, Yu, C., Shiffrin, R. M. *The Automaticity of Cross-Situational Statistical Learning*. Redhawk Mental Life, Oxford, OH. *8 March 2008.*

- Ohnesorge, C., **Kachergis, G.** *Testing the Whorfian Hypothesis: Lateralized Presentation and Color Recognition.* 48th Annual Meeting of the Psychonomic Society, Long Beach, CA. *17 November 2007.*
- Ohnesorge, C., Fanta, A., **Kachergis, G.** *Color Recognition and Laterality: Does Language Affect Color Processing?* 6th Annual Summer Interdisciplinary Conference, Kalymnos, Greece. *28 June 2007.*

## Teaching

- Behavioral Data Science I - co-taught at Arizona State University, Fall 2024
- Cognitive Computational Modeling of Language and Web - developed and taught AI Master's course (6EC), *Spring 2017, 2018*
- Machine Learning - lectured reinforcement learning unit for AI Bachelor's course, *Spring 2018*
- Cognitive Robotics - lectured and developed labs for AI Bachelor's course (6EC), *Fall 2017*
- Contributor to Trends in Artificial Intelligence Master's course, *Fall 2016, 2017*
- Contributor to Search, Planning, and Machine Learning AI Bachelor's course, *Spring 2018*
- *Cognitive Modeling to Study Language and Improve Education*, guest lecture in Topics of AI course at Radboud University, *Fall 2016*
- *Inverting the Classroom*, Pedagogy Seminar Talk, Indiana University, *Spring 2012*
- Teaching Assistant for Human Learning and Cognition, *Spring 2012*
- *Categorization*, guest lecture in Intro. to Psychology, Instr. Hilary Kalagher, *Spring 2009*
- Instructor for Experimental Methods in Psychology (P211), Indiana University, *Spring 2010*

## Supervision

- Doctoral students: Roy de Kleijn *co-promoter 2013–2017*
- AI Master's theses: Floris Berends *2014*; Diede Kemper, Roos van der Donk, Chris Wolk *2016–2017*; Joshua van Kleef, Jordi Riemens *2017–2018*;
- Supervised AI Bachelor's theses:  
*Spring 2017* - Abdullahi Ali, Berend van Deelen, Hester Huijsdens, Jake Overbeek, Ylja Remmits, Vivian Vriezেকolk, Maran Koolen, Bob de Ruiter, Jelmer Jansen, Marlen Lorenz  
*Fall 2017* - Max de Grauw, Tristan Payer, Frans van Grunsven, Jetske Adams, Wieke Harmsen, Stef Brands, Thomas Zoeter, Ruby van Rossum, Ismail Guclu, Bob de Ruiter, Michel Meijerman  
*Spring 2018* - Tessa Bal, Chrisovalandis Boukouras, Ismail Guclu, Tjeerd Mooi, Juliana Montana Melgarejo, Luke Peters, Kimberly Stoutjesdijk
- Supervised undergraduate research assistants: J. Booher, E. Farmer, T. Gangwani, Z. Horwitz, K. Mullen, E. Lee, P. LaFree, A. Salisbury, B. Jenkins, N. Bhatt, K. Agrawal, A. Tan, K. Liang, G. J. Yi

## Service

- Organized the *Using psychometrics to improve cognitive models—and theory* with Alvin Tan and Michael C. Frank at the 46th Annual Conference of the Cognitive Science Society, [psychometrics-workshop.github.io](https://psychometrics-workshop.github.io), *July, 2024*
- Organized the *Video games as a path to a contextualized cognitive science* with Joe Austerweil at the 45th Annual Conference of the Cognitive Science Society, [www.games4understanding.com](http://www.games4understanding.com), *July, 2023*
- Teaching Assistant, Intermediate R tutorial for ICIS, *May, 2021*
- Technical Chair, Global /L+/ School on Language Acquisition, *August, 2021*
- Donders Education Hackathon - helped organize, and mentored 3rd place team, *Fall 2017*
- Member of A.I. Master's Degree Program Committee, Radboud University, *Fall 2016–Spring 2017*
- Member of A.I. Master's Exam Board Committee, Radboud University, *2017–2018*
- Coordinator of Radboud University's A.I. Master's track on Web and Language, *2016–2018*
- Coordinator for Indiana University Cognitive Lunch talk series, *Fall 2010 to Fall 2011*
- Coordinator for Radboud University's Good Aftersnoon talk series, *2016–2018*
- Coordinator for NYU's Concepts and Categories (ConCats) talk series, *2015–2016*

## Invited Talks

- *Computational language learning*, Max Planck Institute for Psycholinguistics, *April 25, 2024*
- *How people actively shape their environment for better learning*, Arizona State University, *October 19, 2023*
- *How learners actively shape their environment for better learning*, Arizona State University, *February 15, 2022*
- *How learners actively shape their environment for better learning*, University of Wisconsin, Madison, *February 8, 2022*
- *Engineering the statistics of the environment: How people shape their experience to promote learning*, University of Illinois, Urbana-Champaign, *March 5, 2021*
- *Towards a “Standard” Model of Word Learning*, LangVIEW online consortium, *May 19, 2020*
- *Engineering the statistics of the environment: How people shape their experience to promote learning*, developmental brown bag at Stanford University, *November 28, 2018*
- *Engineering the statistics of the environment: How people shape their experience to promote learning*, colloquium at Tsinghua University, Beijing, *September 17, 2018*

- *Engineering the statistics of the environment: How people shape their experience to promote learning*, Radboud University, April 29, 2018
- *Engineering the statistics of the environment: How people shape their experience to promote learning*, UC Merced, February 14, 2018
- *Learning More with Less Input: Lessons from Children and Education for A.I.*, colloquium at INRIA Flowers Lab, Bordeaux, November 17, 2017
- *Learning More with Less Input: Lessons from Children and Education for A.I.*, TiCC colloquium at Tilburg University, November 8, 2017
- *Learning More with Less Input: Lessons from Children and Education for A.I.*, AI colloquium at Radboud University, November 2, 2017
- *From Active Learning in Humans to Adaptive Machines in Education*, Summerschool on Learning Systems / Biocomputing at Otto von Guericke University Magdeburg, August, 2017
- *Adaptive Educational Apps for Self-taught Literacy and Numeracy*, Annual CognAC AI Symposium, May, 2017
- *Adaptive Educational Apps for Self-taught Literacy and Numeracy*, AI colloquium at Radboud University, December, 2016
- *A Model with Memory- and Uncertainty-guided Attention to Learn Nouns—and more!*, Radboud University, May 3, 2016
- *How People Learn: Memory- and Uncertainty-driven Attention*, Brown University, April 8, 2016
- *How People Learn Nouns: Memory- and Uncertainty-driven Attention*, University of North Carolina, Charlotte, February 29, 2016
- *How People Learn Nouns (and more)*, Syracuse University, December 3, 2015
- *How People Learn Nouns*, New York University, April 24, 2015
- *Word Learning Trajectories on Different Timescales*, University of Groningen, November 25, 2014
- *Word Learning Trajectories on Different Timescales*, University of Edinburgh, July 2, 2014
- *Word Learning Trajectories on Different Timescales*, Stanford University, May 20, 2014
- *How People Learn Words: Modeling Semantic Bootstrapping and Frequency Effects*, Swansea University, April 2, 2014
- *Similarity and Strategic Effects in Recognition Memory: Attack of the Blobs!*, Indiana University, October 9, 2013
- *Explaining Word Learning Using Domain-General Mechanisms*, University of Colorado at Boulder, September 30, 2013

- *Domain-General Mechanisms for Learning Word-Referent Mappings*, Leiden University, *October 10, 2012*
- *Domain-General Mechanisms for Learning Word-Referent Mappings*, Japan Advanced Institute for Science and Technology, *June 27, 2012*
- *How Children Learn Words*, Carleton College, *April 25, 2012*
- *Domain-General Mechanisms for Learning Word-Referent Mappings*, Syracuse University, *April 15, 2012*
- *Dynamic Effects of Perceptual and Categorical Similarity on Recognition Memory*, Syracuse University, *April 15, 2012*
- *Domain-General Mechanisms for Learning Word-Referent Mappings: Empirical and Modeling Evidence*, Cognitive Lunch, Indiana University, *April 4, 2012*
- *Actively Learning Nouns Across Ambiguous Situations Using Associative Mechanisms*, Stanford University, *February 21, 2012*
- *Modeling the Acquisition of the Mental Lexicon*, Cognitive Lunch, Indiana University, *April 28, 2010*

## Other Fellowships, Grants, & Awards

- **Stanford Human-centered A.I. AWS Cloud Credits Award** (\$13,000), *2019*
- **Stanford Human-centered A.I. Seed Grant**, Learning to play: Understanding infant development with intrinsically motivated artificial agents (\$75,000), *Spring 2019*
- **Semi-finalist**, Global EdTech Startup Awards (egoTeach), *November, 2017*
- **NVIDIA GPU Grant**, *Spring 2017*
- **Global TIES for Children Seed Award**, Testing an Adaptive Tablet Game System for Self-guided Literacy and Numeracy Education in Developing Nations (\$12,000), *Fall 2016*
- **Institute of Human Development and Social Change Seed Award**, Applying Computer Science Models of Self-Directed Learning to New Measures of Young Children's Academically-Oriented Soft Skills (\$9,280), *Fall 2015*
- **National Science Foundation East Asia & Pacific Summer Institute / Japan Society for the Promotion of Science** (OISE-1209475; JAIST, (~\$10,000), *2012*
- **Robert J. Glushko and Pamela Samuelson Foundation Student Travel Grant**, Cognitive Science Society, *2012*
- **William K. Estes Summer Research Award**, Indiana University Psychology Department, *2011*
- **European Neural Network Society Student Travel Award**, *2011*

- **Society for Mathematical Psychology Student Travel Award**, 2009, 2010, 2011
- **Indiana University Cognitive Science Supplemental Research Fellowship**, 2009, 2011

## Membership and Professional Service

- **Associate Editor**, Frontiers in Psychology: Cognition, *July 2016–Present*
- **Ad hoc reviewer**: Child Development; Cognition; Current Biology; Developmental Psychology; Developmental Science; Memory & Cognition; Psychological Review; Psychonomic Bulletin and Review; Applied Psycholinguistics; Behavior Research Methods; Cognitive Science Journal; Cognitive Science Conference; Data Mining and Knowledge Discovery; Infant Behavior and Development; Infancy; Journal of Mathematical Psychology; Journal of Speech, Language, and Hearing Research; Journal of Experimental Psychology: Learning, Memory, and Cognition; Journal of Psycholinguistic Research; Frontiers in Behavioral Neuroscience; Language Learning; Learning and Individual Differences; NeuroImage; PLOS ONE; Language, Cognition and Neuroscience; IEEE Transactions on Cognitive and Developmental Systems; IEEE Conference on Development and Learning (ICDL-EpiRob); IEEE Journal of Biomedical and Health Informatics; Scientific Reports
- **Member** of Cognitive Science Society, *2005–Present*
- **Member** of The Society for Mathematical Psychology, *2008–Present*
- **Member** of the International Congress of Infant Studies *2019–Present*

Last updated: September 24, 2024