Robert Z. Sparks

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Education and Professional Experience

Lab Manager – Research Professional Language and Cognition Lab Advisor: Prof. Michael C. Frank	Stanford University	2024-present
Lab Manager – Research Coordinator Language and Cognition Lab Advisor: Prof. Michael C. Frank	Stanford University	2022-2024
BS, Symbolic Systems, Departmental Honors Concentration: Cognitive Science Advisor: Prof. Hyowon Gweon	Stanford University	2022
Research Assistant Social Learning Lab Advisors: Prof. Hyowon Gweon and Aaron Chuey	Stanford University	2020-2022
Engineer Program-Modeler Intern CBRNE Defense – Hazard Modeling	Battelle	2019

Honors & Awards

Disciplinary Diversity & Integration Award - Symposia — Cognitive Science Society — 2025
Presenter for awarded symposium "Naturalistic observation of language development outside the home". Award recognizes the best cognitive science research in disciplines that have been traditionally under-represented at annual conferences and journals of the Cognitive Science Society.

Robert Glushko Prize for Excellence in Undergraduate Research — Stanford University — 2022
Recognized for senior Honors project, "Communication as Influence: Preschool-Aged Children Can Infer What Speakers Know Based on How They Influence Others," under the supervision of Hyowon Gweon and Aaron Chuey (Stanford Psychology)

The Lunsford Award for Oral Presentation of Research Finalist — Stanford University — 2019
One of 4 Finalists for the Lunsford Award, which recognizes innovative oral and multimedia presentations within the Program in Writing and Rhetoric, emphasizing excellence in dynamic presentations that effectively blend research and strong oral delivery.

Publications

M. Bohn, J. Prein, A. Ayikoru, F. Bednarski, A. Dzabatou, M. C. Frank, A. Henderson, J. Isabella, J. Kalbitz, P. Kanngiesser, D. Keşşafoğlu, B. Koymen, M. V. Manrique-Hernandez, S. Magazi, L. Mújica-Manrique, J. Ohlendorf, D. Olaoba, W. R. Pieters, S. Pope-Caldwell, K. Slocombe, **R. Z. Sparks**, J. Sunderarajan, W. Vieira, Z. Zhang, Y. Zong, R. Stengelin, D. Haun (2026). A universal of human social cognition: Children from 17 communities process gaze in similar ways. *Child Development*. doi:10.1093/chidev/aacaf017.

A.W.M. Tan*, J. Yang*, T. Sepuri, K. Loong Aw, **R. Z. Sparks**, Z. Yin, V. A. Marchman, M. C. Frank, & B. Long (2025). Assessing the alignment between infants' visual and linguistic experience using multi-modal language models. *arXiv*. doi:10.48550/arXiv.2511.18824.

M. C. Frank, V. A. Marchman, C. A. Bergey, V. Boyce, M. Braginsky, G. Kachergis, J. Mankewitz, S. Meylan, B. Prystawski, N. Ram, **R. Z. Sparks**, A. Steffan, A. W.M. Tan, & M. Zettersten (2025). Continuous developmental changes in word recognition support language learning across early childhood. *ELife*. doi:10.7554/eLife.109636.1.

T. Sepuri*, K. Loong Aw*, A. W. M. Tan*, **R. Z. Sparks**, V. A. Marchman, M. C. Frank, & B. Long (2025). Characterizing young children's everyday activities using video question-answering models. *Data on the Brain & Mind Workshop, Advances in Neural Information Processing Systems*. doi:10.31234/osf.io/gndy9_v1.

M. C. Frank, H. Baumgartner, M. Braginsky, G. Kachergis, A. Lightbody, **R. Z. Sparks**, R. Zhu, S. M. Carlson, S. Graham, S. J. Lipina, N. S. Newcombe, C. L. Odgers, R. C. Pianta, R. S. Siegler, M. S. Snowling, H. Yoshikawa, K. A. Dodge, A. Cubillo (2025). Learning Variability Network Exchange (LEVANTE): A global framework for measuring children's learning variability through collaborative data sharing. *Child Development*. doi:10.1111/cdev.70011.

B. Long*, **R.Z. Sparks*,** V. Xiang*, S. Stojanov*, Z. Yin, G. E. Keene, A. W.M. Tan, S. Y. Feng, A. Nag, C. Zhuang, V. A. Marchman, D. L.K. Yamins, M. C. Frank (2025). The BabyView dataset: High-resolution egocentric videos of infants' and young children's everyday experiences. *In Proceedings of the 8th Annual Conference on Cognitive Computational Neuroscience. doi:10.48550/arXiv.2406.10447.*

V. Boyce, **R.Z. Sparks**, Y. Mofor, and M. C. Frank (2025). Preschoolers can form conventional pacts with each other to communicate about novel referents. *Poster at the Annual Meeting of the Cognitive Science Society*. Preprint at https://osf.io/dpgfw_v1.

J. Prein, F. Bednarski, A. Dzabatou, M. C. Frank, A. Henderson, J. Isabella, J. Kalbitz, P. Kanngiesser, D. Keşşafoğlu, B. Koymen, M. V. Manrique-Hernandez, S. Magazi, L. Mújica-Manrique, J. Ohlendorf, D. Olaoba, W. R. Pieters, S. Pope-Caldwell, U. Sen, K. Slocombe, **R. Z. Sparks**, R. Stengelin, J. Sunderarajan, K. Sutherland, F. Tusiime, W. Vieira, Z. Zhang, Y. Zong, D. B.M. Haun, M. Bohn (2025). Measuring variation in gaze following across communities, ages, and individuals — a showcase of the TANGO–CC. *Advances in Methods and Practices in Psychological Science*. doi:10.1177/25152459241308170.

R. Z. Sparks, B. Long, G. E. Keene, M. J. Perez, A. W.M. Tan, V. Marchman, and M. C. Frank (2024). Characterizing contextual variation in children's preschool language environment using naturalistic egocentric videos. *In Proceedings of the 46th Annual Conference of the Cognitive Science Society*.

B. Long, G. Kachergis, V. A. Marchman, S. F. Radwan, **R. Z. Sparks**, V. Xiang, C. Zhuang, O. Hsu, B. Newman, D. L. K. Yamins, & M. C. Frank (2023). The BabyView Camera: Designing a New Head-mounted Camera to Capture Children's Early Social and Visual Environments. *Behavior Research Methods.* doi:10.3758/s13428-023-02206-1.

A. Chuey, **R. Z. Sparks**, & H. Gweon. (2023). Young children can identify knowledgeable speakers from their causal influence over listeners. In *Proceedings of the 45th Annual Conference of the Cognitive Science Society*.

R. Z. Sparks, A. Chuey, & H. Gweon. (2022). Preschool-Aged Children Can Infer What Speakers Know Based on How They Influence Others [Undergraduate Honors Thesis]. *Stanford Digital Repository*. doi:10.25740/xx316hn9817.

Abstracts

V. Boyce, I. Chen, **R. Z. Sparks**, M. Perez, and M. C. Frank (2024). 4-5 year old children can successfully communicate using ad-hoc referential expressions. *6th California Meeting on Psycholinguistics*.

Manuscripts in Preparation

R. Zhu, J. O. Arieda, T. K. Kilonzo, S. Allums, **R. Z. Sparks**, & M. C. Frank. In press. Global research requires global researchers: Opportunities and challenges for capacity-building. *Behavioral and Brain Sciences*.

A. Chuey, **R. Z. Sparks**, H. Gweon. Young children's understanding of communication as causal influence. Under revision. *Cognition*. Preprint at https://osf.io/preprints/psyarxiv/hvm7r_v1.

V. Boyce, **R. Z. Sparks**, M. C. Frank. Preschoolers can coordinate with each other to communicate about novel referents. Submitted for review. Preprint at https://osf.io/preprints/psyarxiv/t76a5_v1.

R. Z. Sparks, G. E. Keene, B. Long, M. J. Perez, V. Phan, A. W.M. Tan, Z. Yin, V. Marchman, and M. C. Frank. The ChildView Dataset: Longitudinal Tracking of Preschoolers' Naturalistic Classroom Experiences Using Egocentric Videos. in prep.

A. Lightbody*, **R. Z. Sparks***, L. Zhang*, F. O'Reilly, B. Domingue, N. Ram, M. C. Frank. Creation and Validation of the LEVANTE Surveys: Caregiver and Child Reports of Development and Broader Contexts. in prep.

Presentations

Naturalistic observation of language development outside the home (Symposium Talk)	Cognitive Science Society Conference 2025	August 2025
ChildView: Characterizing children's naturalistic linguistic experience in the preschool classroom (Talk)	Chosun Center for Data Science in Humanities, Chosun University	May 2025
Characterizing Contextual Variation in Children's Preschool Language Environment Using Naturalistic Egocentric Videos (Poster)	Cognitive Science Society Conference 2024	July 2024
The Babyview Camera: A Head-Mounted Camera for Capturing Children's Early Social and Visual Experiences (Poster) **with**: Violet Xiang	eWEAR Annual Meeting Symposium, Stanford Wearable Electronics Initiative	February 2024
Communication as Influence: Preschool-Aged Children can Infer What Speakers Know Based on How They Influence Others (Talk)	Symbolic Systems Honors Forum, Stanford University	June 2022
Preschool-Aged Children can Infer What Speakers Know Based on How They Influence Others (Poster)	Symbolic Systems Capstone Fair, Stanford University	June 2022
Communication as Influence: Examining Children's Ability to Infer Knowledge from Influence (Poster)	Symbolic Systems Research Forum, Stanford University	October 2021
Inferring Action Goals and Knowledge Communication (Poster)	Symbolic Systems Research Forum, Stanford University	October 2020

Mentorship

Malia Perez	Mentor, Honors Student Undergraduate Research Assistant	2023-Present
Victoria Phan	Mentor, Capstone Student Undergraduate Research Assistant	2023-Present
Gabi Ignacio	Mentor, Undergraduate Research Assistant	2024-Present
Ania Saucedo	Mentor, Undergraduate Research Assistant	2025
Noah Dang	Mentor, Undergraduate Research Assistant	2025
Jasmine Clark	Mentor, Undergraduate Research Assistant	2024-2025
Hana Doueiri	Mentor, Undergraduate Research Assistant	2023-2024
Yannick Mofor	Mentor, Undergraduate Research Assistant	2024

Rebecca Pizzitola	Mentor, Stanford Summer Research Internship	2024
Ilaria Chen	Mentor, Stanford Summer Research Internship	2023
Isabel Folger	Mentor, Undergraduate Research Assistant	2022

Teaching

Research Methods in Psychology	Guest Speaker, Stanford Psychology	Winter 2024

Delivered a presentation to undergraduate students on longitudinal data collection, egocentric video data, naturalistic data as an approach to studying development, and data and participant privacy.

Developmental Psychology Summer Seminar	Instructor and Co-Organizer, Stanford Psychology	2023-2025

Co-organized and instructed a 10-Week summer seminar for interns as a part of a summer research program in psychology and cognitive science. Syllabus included scientific reading, DEI in psychological research, data wrangling & visualization, completing an honors project, and topics in developmental and cognitive psychology.

Service

Stanford Chariot Program	Clinical Research Assistant, Lucille Packard Children's Hospital	2023-Present

Work with and assist in the research activities of the Chariot Program Team to deploy innovative technologies (VR, AR, XR) to patients to support early learning and physical activity during hospital stays and to minimize attention to stressful stimuli, pain, and anxiety.

Stanford Scaffolding of Cognition Lab with: Dr. Cameron Ellis	Volunteer	2024-2025

Assist the research team in collecting experimental & neuroimaging data using awake infant fMRI, adult fMRI, and eye-tracking on projects investigating mechanisms of attention, perception, and learning.

Stanford Psychology Diversity Committee	Committee Member, Climate & Inclusion Outreach & Community Partnership	2023-2025

Member of the official committee of the Department of Psychology, composed of a group of faculty, staff, students, to support and foster diversity in our department in collaboration with the chair and departmental leadership. I work specifically on subcommittees created to lead and contribute to initiatives supporting internal department climate, public outreach, and broader community partnership.

Stanford Paths to PhD	Committee Member, Outreach Team	2023-2025

Helped organized and coordinate Stanford Paths to PhD: an information session, panel, and workshop designed to support people from underrepresented groups interested in pursuing graduate programs or postbac positions in the field of Psychology.

Stanford University Dance Marathon	Executive Director – Programming, Stanford University	2017-2021

Director of team facilitating fundraising, operation of campus activities, and recruitment for Stanford Dance Marathon which raises money for the Uncompensated Care Program at the Bass Center at Lucile Packard Children's Hospital