YUEYAN TANG

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EDUCATION

University of California, San Diego
PhD in Cognitive Science 2021/09 – 2026/06

- Research Focus: Infant-caregiver interactions, multimodal sensing systems, computational approaches, naturalistic data collection, infant wearables

University of California, San Diego | GPA 3.9/4.0
BS in Cognitive Science and Probability & Statistics 2017/09 – 2021/06

APPOINTMENTS

Stanford University
Postdoctoral Scholar, Department of Linguistics Starting 2026/10

- Supervisor: Prof. Meg Cychosz

RESEARCH INTERESTS & FUTURE DIRECTIONS

My research program studies infant-caregiver interactions and joint attention development through observational methods. My current focus involves developing accessible infant wearable tools and an analytic pipeline to capture rich behavioral data in everyday settings. I employ a range of analytical approaches, including time-series analysis, mixed-effects linear models, and machine learning techniques, to uncover behavioral patterns in multimodal data. By integrating ethnographic approaches with wearable technologies, I aim to enhance our understanding of social interaction dynamics and cognitive development across ages and contexts, contributing to both theoretical understanding and practical applications in developmental science.

PUBLICATIONS

- Tang, Y., Triesch, J., & Deák, G. O. (2023). Variability in infant social responsiveness: Age and situational differences in attention-following. Developmental Cognitive Neuroscience, 63, 101283.
- Tang, Y., Gonzalez, M. R., & Deák, G. O. (2024). The slow emergence of gaze- and point-following: A longitudinal study of infants from 4 to 12 months. Developmental Science, 27(3), e13457.
- Tang, Y., & Deák, G. O. (2024). Multimodal Maternal Input: Exploring the Dynamics of Joint Attention in Naturalistic Infant-Caregiver Interactions. 2024 IEEE International Conference on Development and Learning (ICDL), Austin, Texas.
- Deák, G. O., & Tang, Y. (in press). How infants learn to follow attention from gaze-direction and pointing gestures. In Pointing: Culture, Development, and Evolution. Cambridge University Press.
- Tang, Y., Hennessy, V., Liu, T., & Deák, G. (2025). Assessing Whisper for infant research: Benchmarking ASR accuracy and failure analysis on caregiver-infant interactions. In Proceedings of the 2025 IEEE International Conference on Development and Learning (ICDL). IEEE.
- Liu, A., Tang, Y., Ellis, S., & Deák, G. (2025). Exploring multimodal and verbal cues in naturalistic caregiver-infant joint attention from 6 to 9 months. In Proceedings of the 2025 IEEE International Conference on Development and Learning (ICDL). IEEE.
- Wang, Q., Yao, B., Fong, K. K., Tang, Y., Liu, Y., Sheng, L., Wang, D., Jia, R., & Du, Y. (2025). Automatic classification of parental behaviors in bilingual datasets from in-person and telehealth language assessment (Manuscript submitted for review). 2025 Association of Computational Linguistics ARR.
- Tang, Y., Liu, Y., Shirazi, S. Y., Hennessy, V., Shi, J., Bhamidipati, S., Nambiar, A., Luo, L., Deak, G., & Wang, E. (2025). OpenBabyographer: A multimodal open-source infant wearable for studying naturalistic interactions from an egocentric perspective. Manuscript in preparation.
- Du, Y., Tang, Y., Fong, K. K., Liu, Y., Wang, D., Tu-Shea, X., Liu, Y., Zheng Q., Shuang, Q., Xiong, J., & Sheng, L. (2025). A citizen science approach towards parents-administered remote language assessment for bilingual

Mandarin-English children: An evaluation of in-person and telehealth settings. In Frontiers in Education, 10, 1696031.

CONFERENCE PRESENTATIONS

- Tang, Y., Karshaleva, B., & Deák, G. O. (2021, August). Relation of Maternal Sensitivity to Infants' Responsiveness to Joint Attention Cues. Lancaster Conference on Infant & Early Child Development, Lancaster, England.
- Du, Y., Tang, Y., Liu, Y., Fong, K. K., Wang, D., & Sheng, L. (2021, Nov). Parental Adherence to Test Protocols: Exploratory Study on a Remote, Web-Based Mandarin-English Receptive Language Assessment, American Speech–Language–Hearing Association Convention.
- Tang, Y., Triesch, J., & Deák, G. O. (2022, July). Infant Attention-Following in Laboratory and Home Settings. International Congress of Infant Studies, Ottawa, Canada.
- Tang, Y., Du, Y., Liu, Y., Fong, K. K., Wang, D., & Sheng, L. (2023, Sep). Parental Adherence to Telepractice Test Protocols: Exploratory Study in a Web-Based Mandarin-English Child Language Assessment (MERLS), Jiangsu Language Development and Language Disorders Research Conference, Nanjing Normal University, Nanjing, China.
- Tang, Y., & Deák, G. (2024, May). Multimodal maternal input: Exploring the dynamics of joint attention in naturalistic infant-caregiver interactions. Paper presented at the IEEE International Conference of Development and Learning (ICDL), Austin, TX, United States.
- Tang, Y., & Deák, G. (2024, July). Relations among infant attention-following and language development, and caregiver's infant-directed speech, from 4 to 22 months. Poster presented at the International Congress of Infant Studies (ICIS), Glasgow, Scotland.
- Tang, Y., & Deák, G. (2024, July). Infant attention-following in laboratory and home settings from 4 to 9 months. Poster presented at the International Congress of Infant Studies (ICIS), Glasgow, Scotland.
- Tang, Y., & Deák, G. (2024, July). The bidirectional dynamics of infant-maternal interactions during joint attention. In “Pathways into joint attention: who leads, who follows?” Symposium conducted at the International Congress of Infant Studies (ICIS), Glasgow, Scotland.
- Tang, Y., & Deák, G. (2025, April). Mothers' manual extraneous actions and infant attention-following: Relations from 6 to 9 months [Poster presentation]. Society for Research in Child Development (SRCD) Biennial Meeting, Minneapolis, MN, United States.
- Tang, Y., Hennessy, V., Liu, T., & Deák, G. (2025, September). Assessing Whisper for infant research: Benchmarking ASR accuracy and failure analysis on caregiver–infant interactions. Poster presented at the 2025 IEEE International Conference on Development and Learning (ICDL), Prague, Czech.
- Liu, A., Tang, Y., Ellis, S., & Deák, G. (2025, August). Exploring multimodal and verbal cues in naturalistic caregiver–infant joint attention from 6 to 9 months. Poster presented at the 2025 IEEE International Conference on Development and Learning (ICDL), Prague, Czech.

PROJECT EXPERIENCES

Multimodal System for Human Interactions 06/2024 – Present

- Designing and prototyping an accessible, open-source integrated sensor array combining high-fidelity microphones, wide-angle cameras, and other sensors for naturalistic data capture
- Engineering custom hardware solutions for secure, synchronized multi-channel data collection with minimal environmental interference
- Currently establishing a validation protocol with target recruitment of 15 caregiver-infant dyads
- Building automated processing pipelines integrating state-of-the-art speech recognition models and NLP techniques for analyzing developmental language input

Infant-Caregiver Interaction Studies 09/2021 – Present

- Have been leading a research team in analyzing infant-caregiver joint attention behaviors across home and laboratory settings, developing standardized coding manuals and training protocols
- Designed and validated the coding protocol to ensure consistent and accurate measurement of interaction behaviors
- Supervised and trained 10 research assistants in behavioral coding protocols, maintaining >80% inter-rater reliability

- Established efficient workflows for video annotation and data management, successfully processing 40+ hours of interaction recordings while ensuring data quality and consistency

Citizen Science Approach to Bilingual Speech Assessment 09/2021 – 07/2025

- Transcribed bilingual (Mandarin-English) parent-child interactions and categorized parental behaviors into support and interference types
- Conducted statistical comparisons and mixed-effects modeling to evaluate protocol adherence and child performance across two studies
- Assisted with computational validation using machine learning to classify parental behaviors, optimizing automated data analysis
- Applied mixed-effects models to assess contextual factors (e.g., children's age, digital device use) impacting parental adherence, providing insights into optimizing telehealth assessments for bilingual populations

Graduate Student Researcher 09/2021 – Present

Cognitive Development Lab, Supervisor: Prof. Gedeon Deák

- Led teams to analyze infant-caregiver joint attention interactions in both lab and home settings, developing coding manuals and conducting behavioral coding over a 3-year period
- Applied signal processing techniques in Python and R to analyze time-series data from wearable devices, implementing noise reduction and feature extraction
- Collaborated with multidisciplinary teams on wearable design, data analysis, and manuscript preparation, contributing to academic publications and conference presentations

TEACHING EXPERIENCE

Teaching Assistant 04/2019 – Present

UC San Diego Mathematics Department · UC San Diego Cognitive Science Department

- MATH 11 – Calculus-based introductory probability and statistics
- MATH 20B – Calculus for Science and Engineering
- MATH 189 – Exploratory data analysis and inference
- COGS 10 – Cognitive consequences of technology
- COGS 108 – Data science in practice
- COGS 155 – Gesture and Cognition
- DSGN 1 – Design of Everyday Things

AWARDS

UC San Diego Physical Sciences Dean's Undergraduate Award for Excellence	2020 – 2021
Triton Research & Experiential Learning Scholars Quarterly Awards	Winter & Fall 2021
Friends of the International Center Fellowship	2023 – 2024
Hong Kong Polytechnic University Research Student Attachment Fellowship	Summer 2023
Yankelovich Center Grant	2025 – 2026
Merkin Research Fellow	Winter & Spring 2026

SKILLS

- **Technical:** Python, MATLAB, R, Java, Microsoft Office, Jupyter, time-series data analysis, quantitative methods, statistical analysis, Pandas, NumPy, hardware prototyping, sensor integration, version control with Git, open-source project coordination
- **Soft skills:** Cross-functional team leadership; Strategic communication; Proactive planning; Adaptability; Problem-solving; Attention to detail
- **Languages:** Mandarin and English: Completely fluent (spoken and written)