Tian Linger Xu

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EDUCATION

INDIANA UNIVERSITY
Dual Ph.D. in Computer Science and Cognitive Science
Sep 2018 | Bloomington, IN
Outstanding Dissertation Award and Outstanding Research Award

INDIANA UNIVERSITY
M.S. in Computer Science
Dec 2012 | Bloomington, IN

NANJING UNIVERSITY
B.E. in Software Engineering
Jun 2009 | Nanjing, China

LINKS

Github:// **lingerxu**
LinkedIn:// **lingerxu**
Twitter:// **@lingerxu**

SKILLS

PROGRAMMING
Python (including PyTorch, tensorflow, scikit-learn, sktime) • Matlab • R • Java • C • C++ • SQL

WEARABLE SENSORS
Eye-tracking Calibration and Analysis
Wireless Motion Tracking

TEACHING

ASSOCIATE INSTRUCTOR
Machine Learning
Data Mining
Cloud Computing
Database Concepts
Mastering the World Wide Web
Introduction to Programming in Python

RESEARCH MENTOR
Supervised Research in Psychology

GUEST LECTURER
Machine Learning in Cognitive Science

RESEARCH EXPERIENCES

POSTDOCTORAL RESEARCHER   Apr 2018 - present | Bloomington, IN
Building Visual Learning Models and Quantifying Real-time Causal Influence in Multimodal Sensory-motor Behaviors
- Built the entire data collection pipeline from multimodal raw data collection to synchronized preprocessed model-ready datasets with wireless eye-trackers, wireless motion tracking system and multi-view camera capture system in face-to-face social interaction
- Analyzed first-person-view scene properties and perceptual characteristics to investigate what cues drive real-time attention and contribute to successful encoding of novel objects
- Utilized Multivariate Autoregressive Model (MVAR) based Granger Causality and other techniques to model multi-sensory coordination
- Analyzed the structure of sensory-motor input from the infant learners' perspective in this longitudinal study and fed training data in a similar structure to optimize performance in vision learning models

Links: Journal paper1 with github toolbox; Journal paper2; Conference paper1; Conference paper2 with github toolbox, video1, video2

Peekbank: An Open Large-scale Eye-tracking Data Repository
- Initiated and co-led cross-institutional team science project involving 20+ researchers from 10+ universities
- Proposed a unified eye-tracking data structure and relational schema for datasets collected from different systems and platforms
- Provided R libraries for data analysis, validation and visualization
- Fit crossed and mixed effects models to examine the developmental change in children's lexical processing and vocabulary development

Links: Website; Journal paper; Conference paper

PH.D. RESEARCH   Aug 2011 – Apr 2018 | Bloomington, IN
Building Gaze Coordination Models and Statistical Learning Models in Social Robots
- To examine the effects of different robot's gaze coordination models on eliciting active engagement in human robot interaction
- Built a real-time gaze, speech, and visual-stimulus contingent action execution platform with close-to-human-level reaction time in NAO humanoid robots by Aldebaran Robotics
- Implemented different statistical learning models where the robotic agents would generate different gaze, head turn and speech behaviors when aggregated statistical learning signals surpassed thresholds

Links: Journal paper1; Journal paper2; Conference paper; Video1; Video2

SCIENTIFIC TALKS

Nov. 2022	The 55th Annual Meeting of the International Society for Developmental Psychobiology (ISDP)
Mar. 2019	Society for Research in Child Development (SRCD) Biennial Meeting
Jul. 2018	The 21st International Congress of Infant Studies
Jul. 2017	The 39th Annual Meeting of the Cognitive Science Society
May 2017	Cognitive Interaction Technology Workshop
Aug. 2016	The 38th Annual Meeting of the Cognitive Science Society