

Curriculum Vitae (November 2022)

## Melody Xu

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### EDUCATION

2014 – 2018      B.A., Individualized Major: History and Philosophy of Science, Psychology  
Minor: Science and Society  
New York University, New York, NY  
GPA: 3.75/4.00; *cum laude*  
Advisor: Matthew Stanley

Senior Thesis (received honors): The History of A.I.: Simon and Newell's Physical  
Symbols Approach  
Advisor: Jonathan Bain

### HONORS AND AWARDS

2021-22      Fulbright Research Award Recipient, United Kingdom  
The A.I.-Child Metaphor in the History and Philosophy of Science

2020-21      Fulbright Research Award Recipient, China [Program Cancellation]  
History of A.I.: Physical Symbols System in Beijing

2018      NYU Gallatin School Degree Representative

2018      Dean's Award for Graduating Seniors (\$2,000)

2018      Gallatin Undergraduate Research Fund (\$1,000)

2017      Gallatin Undergraduate Research Fund (\$1,000)

### RESEARCH INTERESTS

Artificial intelligence, citizen science, data sharing, developmental science, history of psychology, intelligence

### RESEARCH EXPERIENCE

**Project Manager**, PLAY Project (Playing and Learning Across a Year), New York      Jan 2017 – Present  
Principal Investigators: Karen Adolph, Catherine Tamis-Lemonda, Rick Gilmore

- Oversee a collaborative and synergistic video-intensive developmental science research initiative examining mother-infant natural activity with 75 principal investigators from 50+ universities.
- Manage \$6.3M budget through tracking expenditures, monitoring vendor contracts, and calculating spending forecasts.
- Spearhead remote video training program to ensure data collection quality and consistency across 30+ sites
- Research and execute novel system for questionnaire data input and curation that reduced hundreds of hours of manual data entry.
- Deliver succinct weekly reports regarding relevant information and action items to progress grant.
- Facilitate general communication efforts between participants, researchers, ethics board committees, IT department, and university administration.

**Research Assistant**, New York University Infant Action Lab, New York  
Advisors: Karen Adolph, Ori Ossmy

Jan 2017 – Aug 2018

- Led adult data collection efforts for studies examining the development of motor planning and action anticipation using EEG, head-mounted eye-tracking, and motion tracking.
- Conducted studies investigating how infants discover the hidden affordances of objects through play.
- Developed and fully trained 10+ undergraduate and doctoral students on all lab study protocols.
- Created 10+ posters which were presented at undergraduate, national, and/or international conferences.
- Additional responsibilities included recruiting participants, running data collections, coding and analyzing data, creating protocols, participating in lab meetings, contributing to presentations and publications, and aiding with lab maintenance.

**Research Assistant**, NYU Gallatin School of Individualized Study, New York  
Advisor: Matthew Stanley

Sep 2016 – Aug 2018

- Assisted in various research projects regarding the philosophy and history of science and technology.
- Responsibilities included collecting and analyzing print and digital resources in preparation for various reports, conference papers, and publications, maintaining a resource archive and database on Zotero for computer files and hard copy materials across multiple projects.

**Senior Honors Thesis**, New York University, New York  
Advisor: Jonathan Bain

Spring 2018

- A historical analysis of the physical symbol system hypothesis and the artificial intelligence paradigm pioneered by Allen Newell and Herbert Simon in the mid-twentieth century. Specifically, the paper provides a biographical account of Newell and Simon, followed by the broader historical context in which to situate their research, touching upon trends within the social sciences and technical advancements with regarding the digital computer.

## **PUBLICATIONS (\* joint first authorship)**

### **Journal Articles:**

Soska, K.C. \*, **Xu, M.** \*, Gonzalez, S. L. \*, Herzberg, O. \*, Tamis-Lemonda, C. S., Gilmore, R. O., & Adolph, K. E. (2021). (Hyper)active data curation: A video case study from behavioral science. *Journal of eScience Librarianship*, 10, e1208.s

Ossmy, O., Kaplan, B., Han, D., **Xu, M.**, Bianco, C., Mukamel, R., & Adolph, K.E. (2022). Real-time processes in the development of action planning. *Current biology*, 32, 190-199.

Ossmy, O. \*, Han, D. \*, Kaplan, B.E. \*, **Xu, M.** \*, Bianco, C. \*, Mukamel, R., & Adolph, K. E. (2021). Children do not distinguish efficient from inefficient actions during observation. *Scientific Reports*, 11, 18106.

Tamis-LeMonda, C. S., Gonzalez, S., Xu, M., Herzberg, O., Soska, K. S., Gilmore, R. O., & Adolph, K. E. (in prep) Comparing Apples to Manzanitas and Oranges to Naranjas: A New Measure of English-Spanish Vocabulary in Dual Language Learners.

### **Book Chapters:**

Gilmore, R. O., **Xu, M.**, & Adolph, K. E. (2021). Data sharing. In S. Panicker & B. Stanley (Eds.), *How to conduct research ethically*. Washington, DC: American Psychological Association.

## **PRESENTATIONS**

Ossmy, O., Kaplan, B., Han, D., **Xu, M.**, Bianco, C., & Adolph, K.E. (May 2021). Looking without seeing: Children do not distinguish efficient from inefficient means to achieve a goal. *Vision Sciences Society*, Novato, CA [Virtual].

Gonzalez, S., **Xu, M.**, Herzberg, O., Tamis-Lemonda, C. (March 2020). Toward consistency in English-Spanish vocabulary checklists for dual language learners. *International Congress of Infant Studies*, Glasgow, UK.

Herzberg, O., Fletcher, K., Schatz, J., **Xu, M.**, Tamis-Lemonda, C.S., & Adolph, K.E. (March 2020). Exuberance in play: Infants' interactions with objects at home. *International Congress of Infant Studies*, Glasgow, UK.

Herzberg, O., Vasa, A., Gotfredsen, S., **Xu, M.**, Tamis-Lemonda, C. S., & Adolph, K.E. (March 2020). Infants' spontaneous locomotor activity at home. *International Congress of Infant Studies*. Glasgow, UK.

Ossmy, O., Kaplan, B., Han, D., **Xu, M.**, Bianco, C., & Adolph, K.E. (October 2019). What eye tracking and EEG tell us about the perception of multistep actions in children and adults. *Cognitive Development Society*, Louisville, KY.

Ossmy, O., Kaplan, B., **Xu, M.**, Adolph, K.E. (August 2019). An integrative approach to the development of problem solving. *Flux Society*, New York, NY.

Ossmy, O., Kaplan, B., Han, D., **Xu, M.**, Bianco, C., Adolph, K.E. (March 2019). What eye tracking and EEG tell us about perception of future-directed actions in children and adults. *Society for Research in Child Development*, Baltimore, MD.

Borenstein, H., Chen, A., **Xu, M.**, Kaplan, B., Rachwani, J., Tamis-LeMonda, C.S., & Adolph, K.E. (June 2018). A Toy's Story: Exploration, discovery, implementation, and construction. *International Congress on Infant Studies*, Philadelphia, PA.

Ossmy, O., Kaplan, B., **Xu, M.**, Han, D. & Adolph, K.E. (May 2018). Planning ahead: preparatory EEG activity predicts voluntary actions when the goal is not immediately accessible to perception. *Visual Sciences Society*, St. Pete Beach, FL.

**Xu, M.** (May 2018). The reciprocity of "real" and artificial intelligence. *NYU Gallatin Senior Symposium*, New York, NY.

**Xu, M.** (May 2018). Biological machines: The role of the human-machine analogy in early AI research. *NYU Undergraduate Research Conference*, New York, NY.

**Xu, M.** (May 2018). The development of action anticipation of tool use: EEG and Eye-tracking. *NYU Undergraduate Research Conference*, New York, NY.

Bianco, C. & **Xu, M.** (May 2018). Development of flexibility in tool use. *NYU Undergraduate Research Conference*, New York, NY.

Chen, A., **Xu, M.**, Borenstein, H., Kaplan, B., Rachwani, J., Tamis-LeMonda, C.D., & Adolph, K.E. (May 2018). The 6-Brick challenge: Perception is easy, action is hard. *NYU Undergraduate Research Conference*, New York, NY.

**Xu, M.** (March 2018). Development of flexible motor planning in children's tool use. *NYC Open Data Week @ NYU*. New York, NY.

Ossmy, O., Kaplan, B., **Xu, M.**, & Adolph, K.E. (March 2018). Development in flexibility in tool use. *Cognitive Neuroscience Society*, Boston, MA.

Ossmy, O., Kaplan, B., Han, D., **Xu, M.**, & Adolph, K. E. (November 2017). Neural patterns underlying the development of planning in tool use. *International Society for Developmental Psychobiology*, Washington, D.C.

Ossmy, O., Kaplan, B., Han, D., **Xu, M.**, & Adolph, K. E. (November 2017). Neural patterns underlying the development of planning in tool use. *Society for Neuroscience*, Washington, D.C.

Ossmy, O., Kaplan, B., Han, D., **Xu, M.**, & Adolph, K. E. (October 2017). Development of flexibility in tool use. *Cognitive Development Society*, Portland, OR.

## **TEACHING EXPERIENCE**

Fall 2017            Teaching Assistant, Introduction to Computer Science, New York University  
                          Instructor: Joshua Clayton

Spring 2018        Teaching Assistant, Introduction to Computer Science, New York University  
                          Instructor: Saadia Lgarch

## **RELEVANT COURSES & INDEPENDENT STUDIES**

### Courses:

Developmental Psychology (Instructor: Karen Adolph, NYU Department of Psychology)  
Statistics for the Behavioral Sciences (Instructor: Elizabeth Bauer, NYU Department of Psychology)  
Advanced Psychological Statistics (Instructor: Pascal Wallisch, NYU Department of Psychology)  
Biology & Society (Instructor: Myles Jackson, Princeton Institute for Advanced Study)  
Science and Society (Instructor: Myles Jackson, Princeton Institute for Advanced Study)  
The Seen and Unseen in Science (Instructor: Matthew Stanley, NYU Gallatin)  
Darwin's Origin of Species (Instructor: Eugene Cittadino, NYU Gallatin)  
Malthus and His Legacy (Instructor: Eugene Cittadino, NYU Gallatin)  
Intelligence: Real and Artificial (Instructor: James Lewis, NYU Tandon School of Engineering)  
Robots, Brains, and Human the Mind (Instructor: Todd Gureckis, NYU Department of Psychology)  
Science, Technology, and Society (Instructor: Jonathan Bain, NYU Tandon School of Engineering)  
Tinkering in Feminist Technoscience (Instructor: Cyd Cipolla, NYU Gallatin)  
Philosophy of Science (Instructor: Michael Strevens, NYU Department of Philosophy)  
What Can Neuroscience Tell Us About Free Will? (Instructor: Jeff Erlich, NYU Shanghai)  
Robots, Apes, & Electric Sheep: Investigating Our Cybernetic Culture (Amanda Licastro, NYU Gallatin)

### Independent Studies:

Science and Pseudoscience (Jonathan Bain, NYU Tandon School of Engineering)  
Feminist Views in Science (Cyd Cipolla, NYU Gallatin)  
History of Neuroscience (Brendan Matz, NYU Tandon School of Engineering)

## **SKILLS**

### **Languages**

English (native), Cantonese (fluent), Mandarin (intermediate)

### **Computer**

Adobe Systems (Illustrator, Premiere, Photoshop), Datavyu, Endnote, KoBoToolBox,

Microsoft Office (Excel, PowerPoint, Word), Ruby, SPSS, Python, R Markdown, Zotero

### **Technology**

EEG, Eye tracking, Motion tracking