

## Education

---

### CARNEGIE MELLON UNIVERSITY

AUGUST 2021 - PRESENT

Ph.D. in Cognitive Psychology

*Advisors: Paulo Carvalho, Ken Koedinger*

### UNIVERSITY OF ILLINOIS, URBANA - CHAMPAIGN

AUGUST 2018 - DECEMBER 2020

B.S. in Brain and Cognitive Science with Distinction, Minor in Linguistics

*Advisors: Simona Buetti, Alejandro Lleras (thesis), Jon Willits (research)*

## Research Experience

---

### OAK LAB OF CARNEGIE MELLON UNIVERSITY

JANUARY 2024 - PRESENT

#### Graduate Researcher

- ❖ Developed novel task paradigm to assess to compositional effect of relational task complexity on discovery-based math learning
- ❖ Collected data across 6+ studies consisting of 200+ participant cohorts
- ❖ Assessed task performance using frequentist and bayesian mixed-effects models and logistic regression, with attention to individual differences of overlapping task-relevant skills
- ❖ Analysed verbal responses to assess rule discovery strategies over the course of rule-learning tasks

### CAOs LAB OF CARNEGIE MELLON UNIVERSITY

AUGUST 2021 - DECEMBER 2023

#### Graduate Researcher

- ❖ Employed operant conditioning techniques to conduct behavioral experiments with rhesus macaques
- ❖ Analyzed the performance of non-human primates on matching tasks for comparison with humans
- ❖ Conducted in-person experimental sessions with children aged 3-5 years
- ❖ Developed applications through R studio to facilitate routine analyses and production of daily logs
- ❖ Maintained electronic hardware and soldered circuitry for Arduino interface

### VISION LAB OF THE UNIVERSITY OF ILLINOIS

SEPTEMBER 2018 - MAY 2021

#### Undergraduate Researcher

- ❖ Independently developed five 2D and two VR experiments to model human attention and visual search in Python and JavaScript
- ❖ Processed data for ongoing experiments to monitor surfacing trends and resolve errors in participant-side task workflow in R and Excel
- ❖ Trained and coordinated Research Assistants in the administering of experiments to test subjects
- ❖ Recorded necessary media for ongoing projects including 360° video for virtual reality importation
- ❖ Redesigned the Vision Lab website and conserved data during the move to a new site and structure

### LEARNING & LANGUAGE LAB OF THE UNIVERSITY OF ILLINOIS

AUGUST 2020 - AUGUST 2021

#### Software Developer

- ❖ Designed and implemented User Interface in a 3D neural network sandbox powered by Unity
- ❖ Directed team-members in the use of Object-Oriented Programming and optimization in C#

- ❖ Documented preexisting code for Project Humans and ensured consistent maintenance of conventions
- ❖ Worked in a team of four in cooperative writing and merging of branched directories using Git

## Publications

---

- ❖ Cantlon, J., Piantadosi, S., Conti, J., Boni, I., Ozaydin, T., Bonn, C. (under review). "Universal foundation and plasticity of abstract reasoning across culture, age, and species"
- ❖ Kaicher, C. M., Conti, J. J., Dedhe, A. M., Aulet, L. S., & Cantlon, J. F. (2024). Is core knowledge a natural subdivision of infant cognition?. Behavioral and Brain Sciences, 47, e133.

## Posters

---

- ❖ Conti, J., Koedinger, K., Carvalho, P. (2025). "It's all shapes to me: Blocking aids discovery of complex relational structures" Psychonomics Society 2025
- ❖ Conti, J., Koedinger, K., Carvalho, P. (2025). "What's going on? Surprising difficulties in complex relational rule discovery" Cognitive Science Society 2025
- ❖ Conti, J., Koedinger, K., Carvalho, P. (2024). "Rethinking relations: Limitations of pretraining in relational rule learning" Psychonomics Society 2024
- ❖ Conti, J., Bryer, M., Piantadosi, S., Cantlon, J. (2022). "Learning Capacity Across Species and Age to Identify Origins of Human Uniqueness" Cognitive Developmental Society 2022
- ❖ Conti, J., Buetti, S., Lleras, A. (2020). "Evaluating the contribution of visual feature heterogeneity in conjunction search performance" Vision Sciences Society 2020

## Teaching Experience

---

### TEACHING ASSISTANT AT CARNEGIE MELLON UNIVERSITY

SEPTEMBER 2022 – PRESENT

#### Child Development (with Sharon Carver)

Fall 2024

- ❖ Served as student-instructor liaison for a class of approx. 30 undergraduate students
- ❖ Delivered multiple lectures on content including information processing and conceptual development
- ❖ Graded written work c reflections of development in context and across different generations

#### Human Information Processing and Artificial Intelligence (with John Anderson)

Fall 2022 & 2025

- ❖ Served as student-instructor liaison for classes of approx. 30 undergraduate students
- ❖ Supervised the introduction of Generative AI usage in the classroom and assigned coursework
- ❖ Delivered multiple lectures on content including generative AI, reasoning, and decision making
- ❖ Held weekly office hours to workshop student assignments written in Python
- ❖ Graded written and coding assignments and provided individual feedback

### INDEPENDENT TUTOR

SEPTEMBER 2019 – DECEMBER 2020

#### Basic German, Intermediate Spanish, General Psychology, Composition

- ❖ Guided high-school, graduate, and postgraduate students in keeping pace with sudden online adaptation
- ❖ Priority placed on individual needs by adapting necessary content and internalization through discourse
- ❖ Developed high proficiency in editorial work and discussion of relevant corrections

## Skills

---

### COMPUTATIONAL

- ❖ **Python**, using Anaconda and PyCharm IDEs for statistical analysis and PsychoPy experimentation
- ❖ **C#**, using VSCode for the development of scripts for Unity 3D, used in VR and 2D gameplay
- ❖ **C++**, using Ubuntu and tested through Catch and Valgrind for data structure education
- ❖ **JavaScript**, using WebStorm IDE for online experiments through Pavlovia and JSON for data management
- ❖ **Java**, experienced with the IntelliJ IDE and Android App Development
- ❖ **HTML** web design, for the development of personal and professional websites
- ❖ **R**, using Rstan for MCMC Bayesian modeling and basic R packages for general statistical analysis
- ❖ Other software-oriented skills include Git project management, Microsoft Office, and Adobe Photoshop

### SPOKEN LANGUAGES

- ❖ Native Language – English
- ❖ Advanced Italian and Spanish
- ❖ Elementary German and Japanese

## Awards

---

<b>PSYCHONOMICS SOCIETY J. FRANK YATES STUDENT TRAVEL AWARD</b>	<b>SUMMER 2025</b>
<b>GRADUATE CONFERENCE TRAVEL GRANT</b>	<b>FALL 2024</b>
<b>DEAN'S LIST</b>	<b>SPRING 2020</b>
<b>UNDERGRADUATE RESEARCH SUPPORT GRANT</b>	<b>FALL 2019</b>

## Other Projects

---

Conti, J., Buetti, S., Lleras, A. (Undergraduate thesis). "Evaluating the contribution of visual feature heterogeneity in conjunction search performance"

- ❖ Study accepted for poster presentation at Vision Sciences Society 2020
- ❖ Developed experiments in PsychoPy, which were also transcribed to JavaScript for online studies
- ❖ Conducted data processing and statistical analyses in R to model Target Contrast Signal Theory

Conti, J., Willits, J., Language Learning Lab at UIUC - Project Humans (in development). A tool designed to allow for the testing of neural networks in a more authentic 3D environment

- ❖ Project allows for theories of semantics explored through neural networks to be applied to a virtual environment populated by NPCs humans and resources
- ❖ Used Unity to include more authentic representations of human vision and to easily observe and explore behavioral trends in real time

## Outreach & Volunteering

---

<b>COG SCI COFFEE AT CARNEGIE MELLON UNIVERSITY</b>	<b>JANUARY 2024 - PRESENT</b>
---	-------------------------------

### Co-Founder

- ❖ Organized a space for post-doctoral researchers and graduate students across disciplines to meet other early academics maintaining interest in cognitive science
- ❖ Held bi-weekly discussion groups for historic and modern literature relevant to the field

**GRADUATE PSYCHOLOGY OUTREACH PROGRAM AT CARNEGIE MELLON UNIVERSITY**

**AUGUST 2021 - PRESENT**

**Organizer**

- ❖ Collaborated with fellow graduate students of the CMU Psychology Department on educational presentations for middle and high school students in the community
- ❖ Topics of presentation include college preparedness, lifelong growth, and career choices

**TARTAN SALSA OF CARNEGIE MELLON UNIVERSITY**

**MAY 2023 - PRESENT**

**President**

- ❖ Coordinated a club of 300 graduate and undergraduate members with the goal of cultural appreciation and community building through Latin dance
- ❖ Directed a team of 8 instructors in weekly classes covering multiple styles across three levels of proficiency
- ❖ Provided volunteer teaching services to groups including the Association of Latino Professionals for America and CMU's Peer Health Advocates, and the Spanish and Latin Student Association

**CLIMBING CLUB AT THE UNIVERSITY OF ILLINOIS**

**APRIL 2019 - APRIL 2020**

**Philanthropy Chair**

- ❖ Collaborated with a team of six to organize three annual fundraisers such as a Reel Rock viewing and raffle for a club of 150 students, allowing for \$2500 to be donated to the Access Fund
- ❖ Coordinator of ecological service projects such as biannual volunteer trail reconstruction of Jackson Falls