

# Daniel J. Horschler

## Curriculum Vitae

### Contact Information

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The University of Arizona  
School of Anthropology  
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### Areas of Interest

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Cognitive Evolution | Cognitive Development | Social Cognition | Theory of Mind | Joint Experience |  
Shared Intentionality | Executive Function | Domestication | Brain Evolution | Neuroanatomy

### Education

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#### The University of Arizona

Ph.D., Anthropology (2021 expected)  
Major field: Biological Anthropology  
Minor field: Cognitive Science  
Affiliation: Cognitive Science Program  
M.A., Anthropology (2018)  
Major field: Biological Anthropology



#### The University of North Carolina at Chapel Hill

B.S., Psychology (2016)  
Major field: Cognitive Psychology  
Minor field: Anthropology  
Highest Distinction & Highest Honors



### Research Experience

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**Wildlife Science Center**, Stacy, MN (2018 – Present)  
**Humane Society of Southern Arizona**, Tucson, AZ (2018 – Present)  
**Arizona Canine Cognition Center**, Tucson, AZ (2016 – Present)  
**Canine Companions for Independence**, Santa Rosa, CA & Oceanside, CA (2016 – Present)  
**Cayo Santiago Biological Field Station**, Punta Santiago, Puerto Rico (2016 – Present)  
**Canine Cognition Center at Yale**, New Haven, CT (2015)  
**Human Memory Lab**, Chapel Hill, NC (2015 – 2016)  
**Lenovo User Experience Research Team**, Morrisville, NC (2014 – 2016)  
**Somatosensory Research Lab**, Chapel Hill, NC (2013 – 2014)

## Peer-Reviewed Publications

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**Horschler, D.J.**, Santos, L.R., & MacLean, E.L. (In press). How do non-human primates represent others' awareness of where objects are hidden? *Cognition*.

Arre, A.M.\* & **Horschler, D.J.\*** (In press). Swimming and diving as social play in juvenile rhesus macaques (*Macaca mulatta*). *Behaviour*. [\*Denotes equal contribution]

Bray, E.E., Gruen, M.E., Gnanadesikan, G.E., **Horschler, D.J.**, Levy, K.M., Kennedy, B.S., Hare, B.A., & MacLean, E.L. (2020). Dog cognitive development: A longitudinal study across the first two years of life. *Animal Cognition*.

**Horschler, D.J.**, MacLean, E.L., & Santos, L.R. (2020). Advancing gaze-based research on primate theory of mind. *Trends in Cognitive Sciences*, 24(10), 778-779.

Bray, E.E., Gruen, M.E., Gnanadesikan, G.E., **Horschler, D.J.**, Levy, K.M., Kennedy, B.S., Hare, B.A., & MacLean, E.L. (2020). Cognitive characteristics of 8-to-10-week-old assistance dog puppies. *Animal Behaviour*, 66, 193-206.

**Horschler, D.J.**, MacLean, E.L., & Santos, L.R. (2020). Do non-human primates really represent others' beliefs? *Trends in Cognitive Sciences*, 24(8), 594-605.

**Horschler, D.J.** & MacLean, E.L. (2019). Leveraging brain-body scaling relationships for comparative studies. *Animal Cognition*, 22(6), 1197-1202.

**Horschler, D.J.**, Santos, L.R., & MacLean, E.L. (2019). Do non-human primates really represent others' ignorance? A test of the awareness relations hypothesis. *Cognition*, 190, 72-80.

**Horschler, D.J.**, Hare, B., Call, J., Kaminski, J., Miklósi, Á., & MacLean, E.L. (2019). Absolute brain size predicts dog breed differences in executive function. *Animal Cognition*, 22(2), 187-198.

† Selected as the issue's highlight article

## Manuscripts

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Salomons, H., Smith, K., Callahan-Beckel, M., Callahan, M., Levy, K., Kennedy, B.S., Bray, E., Gnanadesikan, G.E., **Horschler, D.J.**, Gruen, M., Tan, J., White, P., MacLean, E., & Hare, B. (Preprint). Cooperative communication with humans evolved to emerge early in dogs. *bioRxiv*.

Bray, E.E., Gnanadesikan, G.E., **Horschler, D.J.**, Levy, K.M., Kennedy, B.S., Famula, T.R., & MacLean, E.L. (Preprint). Early-emerging and highly-heritable sensitivity to human communication in dogs. *bioRxiv*.

**Horschler, D.J.**, Bray, E.E., Gnanadesikan, G.E., Byrne, M., Levy, K.M., Kennedy, B.S., & MacLean, E.L. (Submitted). Dogs re-engage human partners when joint social play is interrupted: A behavioral signature of shared intentionality?

## Conference Presentations

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**Horschler, D.J.**, Bray, E.E., & MacLean, E.L. (2021). Do dogs form joint intentions with humans in social play? Talk presented at the Society for Personality and Social Psychology's Origins of the Social Mind Preconference (Virtual meeting).

Bray, E.E., Gnanadesikan, G.E., **Horschler, D.J.**, & MacLean, E.L. (2021). Heritable variation in dog social cognition. Thread presented at the Animal Behavior Society and Association for the Study of Animal Behaviour Twitter Conference (Virtual meeting).

Gnanadesikan, G.E., Espinosa, J.H., & **ManyDogs**. (2021). ManyDogs 1: An International Collaborative Approach to Pointing Comprehension in Domestic Dogs. Thread presented at the Animal Behavior Society and Association for the Study of Animal Behaviour Twitter Conference (Virtual meeting).

**Horschler, D.J.**, Bray, E.E., & MacLean, E.L. (2020). Do dogs re-engage humans when joint experiences end? Talk presented at the Yale University East Coast Canine Cognition Workshop, New Haven, CT.

Bray, E.E., Gnanadesikan, G.E., **Horschler, D.J.**, & MacLean, E.L. (2020). Early development and longitudinal stability of cognitive traits in working dogs. Talk presented at the Yale University East Coast Canine Cognition Workshop, New Haven, CT.

MacLean, E.L., Bray, E.E., Gnanadesikan, G.E., & **Horschler, D.J.** (2020). Associations between individual differences in cognition and training outcomes in assistance dogs. Talk presented at the Yale University East Coast Canine Cognition Workshop, New Haven, CT.

**Horschler, D.J.**, Santos, L.R., & MacLean, E.L. (2019). Awareness relations underpin knowledge representation in rhesus monkeys. Talk presented at the UA-ASU Cognitive Science Conclave, Tucson, AZ.

**Horschler, D.J.**, Santos, L.R., & MacLean, E.L. (2019). How do non-human primates represent what others know? Talk presented at the 7<sup>th</sup> Annual Conference of the Southwestern Association of Biological Anthropologists, Tempe, AZ.

† *Awarded prize for best student podium presentation*

MacLean, E.L., Bray, E.E., Gnanadesikan, G.E., & **Horschler, D.J.** (2019). Ontogeny and heritability of cognitive and temperamental traits in an assistance dog population. Talk presented at the International Canine Science Conference, Tempe, AZ.

**Horschler, D.J.**, Santos, L.R., & MacLean, E.L. (2019). Do non-human primates really represent others' ignorance? Talk presented at the 26<sup>th</sup> International Conference on Comparative Cognition, Melbourne Beach, FL.

† *Selected as a finalist for the Ron Weisman Outstanding Student Presentation Award*

Bray, E.E., Gnanadesikan, G.E., **Horschler, D.J.**, & MacLean, E.L. (2019). Early emerging cognition in 9-week-old puppies. Talk presented at the 26<sup>th</sup> International Conference on Comparative Cognition, Melbourne Beach, FL.

MacLean, E.L., Bray, E.E., Gnanadesikan, G.E., & **Horschler, D.J.** (2019). Heritability of cognitive traits in a pedigreed dog population. Talk presented at the 26<sup>th</sup> International Conference on Comparative Cognition, Melbourne Beach, FL.

**Horschler, D.J.** & MacLean, E.L. (2018). Dogs as a model for the cognitive implications of neuroanatomical variation. Talk presented at the Yale University East Coast Canine Cognition Workshop, New Haven, CT.

MacLean, E.L. & **Horschler, D.J.** (2018). Breed differences in dog cognition are predicted by absolute brain volume. Talk presented at the 126<sup>th</sup> Annual Convention of the American Psychological Association, San Francisco, CA.

**Horschler, D.J.** & MacLean, E.L. (2017). Absolute brain size predicts dog breed differences in executive function and social cognition. Poster presented at the UA-ASU Cognitive Science Conclave, Tucson, AZ.

**Horschler, D.J.** & MacLean, E.L. (2017). Absolute brain size predicts dog breed differences in working memory and social cognition. Poster presented at the North American Canine Science Forum, Tempe, AZ.

## Internal Presentations

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**Horschler, D.J.** (2020). How is human social cognition different? Invited talk presented via Zoom for PHIL 271: Philosophy of Language at Yale University.

**Horschler, D.J.**, Santos, L.R., & MacLean, E.L. (2019). Do monkeys understand knowledge and ignorance? Talk presented at the Anthropology Graduate Students at the University of Arizona (AGUA) Student Lecture Series, Tucson, AZ.

**Horschler, D.J.** (2019). What can dogs teach us about cognitive evolution? Talk presented at the UA Grad Slam Three-Minute Thesis Competition, Tucson, AZ.

† *Selected as a semifinalist in campus-wide competition*

Gnanadesikan, G.E., **Horschler, D.J.**, & MacLean, E.L. (2019). Social cues and hormonal profiles over development in wolf puppies. Poster presented at the GPSC Student Showcase, Tucson, AZ.

**Horschler, D.J.** & MacLean, E.L. (2018). Absolute brain size predicts dog breed differences in executive function and social cognition. Poster presented at the GPSC Student Showcase, Tucson, AZ.

**Horschler, D.J.**, Susser, J.A., & Mulligan, N.W. (2016). Metamemory for performed and observed actions: Within-subjects. Poster presented at the UNC Psychology and Neuroscience Honors Poster Symposium, Chapel Hill, NC.

**Horschler, D.J.**, Susser, J.A., & Mulligan, N.W. (2016). Metamemory for performed and observed actions: Within-subjects. Poster presented at the UNC Celebration of Undergraduate Research, Chapel Hill, NC.

**Horschler, D.J.** (2015) A brief overview of canine cognition research. Invited talk presented for PSYC 67: The Senses of Animals at the University of North Carolina, Chapel Hill, NC.

**Horschler, D.J.** (2014). Insights into user experience at Lenovo. Poster presented at the Karen M. Gil Internship Program Poster Symposium, Chapel Hill, NC.

## Teaching Experience

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**NSCS 200: Fundamentals of Neuroscience and Cognitive Science** (Spring 2020)

Department of Neuroscience | School of Mind, Brain & Behavior | College of Science

Graduate Teaching Associate | ~160 students

**ANTH 170C2: Animal Minds** (Fall 2019)

School of Anthropology | College of Social and Behavioral Sciences

Graduate Teaching Associate | Two sections (~30 students each)

**ANTH 327: Dog Thought** (Spring 2019)

School of Anthropology | College of Social and Behavioral Sciences

Graduate Teaching Associate | ~150 students

**NSCS 321: Research Methods in Cognitive Science** (Fall 2018)

Department of Neuroscience | School of Mind, Brain & Behavior | College of Science

Graduate Teaching Assistant | ~110 students

**ANTH 170: Human Variation in the Modern World** (Fall 2017 & Spring 2018)

School of Anthropology | College of Social and Behavioral Sciences

Graduate Teaching Assistant | Two sections per semester (~30 students each)

## Grants and Fellowships

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### Grants

SPSP Origins of the Social Mind Registration Award (2021)

UA School of Anthropology Traditions, Transitions, & Treasures Research Grant – Fall (2020)

UA Raphael and Jolene Gruener Research Travel Award (2020)

UA School of Anthropology Traditions, Transitions, & Treasures Research Grant – Spring (2020)

UA School of Anthropology Traditions, Transitions, & Treasures Research Grant (2019)

UA School of Anthropology Riecker Research Grant (2019)

UA Graduate & Professional Student Council Travel Grant (2019)

UA Graduate Interdisciplinary Programs Herbert E. Carter Travel Award (2019)

UA School of Anthropology Traditions, Transitions, & Treasures Travel Grant (2018)

UA Graduate & Professional Student Council Travel Grant (2018)

UNC-CH Psychology and Neuroscience Gillian T. Cell Senior Thesis Award (2015)

## Fellowships

UA Haury Dissertation Fellowship (2020 – 2021)

UA Graduate College Fellowship (2016 – 2018)

UA Graduate Access Fellowship (2016 – 2017)

UA School of Anthropology Emil W. Haury Fellowship (2016 – 2017)

## Selected Media Coverage

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**Absolute brain size predicts dog breed differences in executive function, *Animal Cognition***

[ScienceDaily](#) | [Sky News](#) | [Insider](#) | [Psychology Today](#) | [talkRADIO London](#) |

[The Naked Scientists Podcast](#) | [Arizona Public Media \(NPR/PBS\)](#) |

[ABC 15 \(Phoenix, AZ\)](#) | [KOLD News 13 \(Tucson, AZ\)](#) | [KVOI Radio \(Tucson, AZ\)](#)

## Other Research Coverage

[KOLD News 13 \(Tucson, AZ\)](#): UA studies potential for working pups, saving time and money

[StarTribune \(Stacy, MN\)](#): What separates dogs and wolves?

[KJZZ Radio \(Tucson, AZ\)](#): Arizona scientists study dog minds to better understand our own

[The Daily Wildcat \(Tucson, AZ\)](#): Canine cognition center explores dog smarts

[ABC 30 \(Fresno, CA\)](#): Schools across the country opening their doors to dogs

## Commentary on Related Research

[National Geographic](#): Centuries of breeding have reshaped dog brains—here's how

[The Washington Post](#): As humans shaped dogs' bodies, we also altered their brains

[Science](#): Humans haven't just changed what dogs look like—we've altered the very structure of their brains

## Relevant Coursework

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Animal Behavior | Biopsychology | Child Development | Cognitive Neuroscience of Imagination |

Cognitive Psychology | Cognitive Science Colloquium | Evolutionary Psychology |

Fundamentals of Evolutionary Biology | History of Anthropological Theory | Human Cognitive Evolution |

Human Evolutionary Biology | Introduction to Programming | Philosophy of Mind | Primate Behavior |

R Programming: Applied Statistical Analysis | R Programming: Data Analysis/Visualization |

R Programming: Intro/Multivariate Statistics | Statistical Principles of Psychological Research

## Undergraduate Mentoring

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### Honors Thesis Supervision

Amelia Bryony (Fall 2019 – Spring 2020): “Dog brain size and executive function”

Tegan Wambold (Fall 2017 – Spring 2018): “Shared intentionality between humans and canines”

### **Directed Research Supervision**

Thomas Kile (Fall 2017 – Spring 2019)

Julia Kemper (Spring 2017)

Lindsey Lang (Spring 2017)

### **Science Outreach**

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#### **Letters to a Pre-Scientist (2020 – 2021)**

Participated in a STEM pen pal program with middle school students from underserved communities

#### **Research Demonstration for AP/Honors High School Students, Tucson, AZ (2018 & 2019)**

Dog cognition experiment demo organized by the Office of Admissions, University of Arizona

#### **Dogtoberfest Dog Festival, Tucson, AZ (2017 & 2018)**

Dog cognition experiment demo at a fundraiser for Handi-Dogs, Inc.

#### **Dog Days with the Dean, Tucson, AZ (2017)**

Dog cognition experiment demo organized by the Dean of Students Office, University of Arizona

#### **Storm Phobia in Shelter Dogs, Tucson, AZ (2016)**

Advised the First LEGO League Robotics team at Sunrise Drive Elementary School

#### **Undergraduate Poster Symposium, Chapel Hill, NC (2015)**

Poster judge for PSYC 67: The Senses of Animals

#### **BarkFest Dog Festival, New York City, NY (2015)**

Represented and recruited participants for the Canine Cognition Center at Yale

### **Professional Service**

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#### **Ad-Hoc Reviewer**

*Animal Cognition* | *Current Zoology* | *Frontiers in Veterinary Science* | *Journal of Comparative Psychology* | *PeerJ* | *Scientific Reports* | *The Federation of European Biochemical Societies Journal* | *Topics in Cognitive Science*

#### **Research and Projects Grant Reviewer**

Graduate & Professional Student Council, University of Arizona

#### **Travel Grant Reviewer**

Graduate & Professional Student Council, University of Arizona

#### **Membership**

American Association for the Advancement of Science | Comparative Cognition Society | Cognitive Science Society