ANDREW J. GRAVES

EDUCATION

2023 — **Ph.D., M.A.**
Cognitive Psychology- Quantitative — University of Virginia (UVA)

- Dissertation: Predicting Phenotypic Variation Through Human Brain Decoding and Connectivity: Applications for Capturing Individual Differences in Face Recognition Ability, Aging, and Brain-Computer Interfaces
- M.A. Thesis: DNA methylation of the oxytocin receptor gene maps increases in conditioned learning rates at the late positive potential
- Advisor: James P. Morris

2021 — **M.S.**
Data Science — UVA

- Capstone: Extensions and application of the Robust Shared Response Model to electroencephalography data for enhancing brain-computer interface systems
- Project Sponsor: Per B. Sederberg

2017 — **M.A.**
Experimental Psychology — Appalachian State University (ASU)

- Thesis: Preliminary evidence for two independent learning mechanisms via electrodermal responses to visual stimuli
- Advisor: Kenneth M. Steele

2015 — **B.S., B.A.**
Psychology- Natural Science — ASU

INDUSTRY EXPERIENCE

May 2022 | August 2022 — **Data Science Ph.D. Internship**
HemoShear Therapeutics — Charlottesville, VA

- Focused on computational biology problems emphasizing drug discovery for rare diseases
- Developed Python package for implementing models from literature to analyze biological networks consisting of protein, genetic, and clinical data
- Leveraged graph-based machine learning to generate novel treatment recommendations for long-term storage in knowledge databases

CONTACT INFO

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GitHub
+1 865-712-8818

TECHNICAL SKILLS

-Fluent in programming with Python (e.g., NumPy, Pandas, Matplotlib, Scikit-learn, TensorFlow) and R (e.g., Tidyverse, Base, GGplot2, Caret, Igraph)

-Expert in traditional statistical tools (Frequentist and Bayesian generalized linear models)

-Experienced practitioner in core machine learning domains: Supervised, Unsupervised, Graph-based, Reinforcement, and Deep learning

-Trained in fundamentals of SQL, Markdown, Latex, MATLAB, Bash, Git, and front-end basics (HTML, CSS, & JavaScript)

Last updated on 2023-10-16.

PUBLICATIONS

2023 **Functional brain connectivity during social attention predicts individual differences in social skill**
In press at *Social Cognitive and Affective Neuroscience*
Brindley, S. B., Skyberg, A. M., **Graves, A. J.**, Connelly, J. J., Puglia, M. H., & Morris, J. P.

2023 **Father's care uniquely influences male neurodevelopment**
Proceedings for the National Academy of Sciences, 120(31). https://doi.org/10.1073/pnas.2308798120
Danoff, J. S., Ramos, E. N., Hinton, T. D., Perkeybile, A. M., **Graves A. J.**, ..., Connelly J. J.

2023 **An epigenetic mechanism for differential maturation of amygdala-prefrontal connectivity involved in childhood socio-emotional development**
Translational Psychiatry, 13(91). https://doi.org/10.1038/s41398-023-02380-y
Skyberg, A. M., Newman, B. T., **Graves, A. J.**, Goldstein, A. M., Brindley, S. R., Kim, M., Druzgal, J. T., Connelly, J. J., & Morris, J. P.

2021 **Extensions and application of the Robust Shared Response Model to electroencephalography data for enhancing brain-computer interface systems**
IEEE Systems and Information Engineering Design Symposium.
https://doi.org/10.1109/SIEDS52267.2021.9483745
Graves, A. J., Clayton, C., Soh, J. Y., Yohe, G, & Sederberg, P. B.

2021 **Multilab direct replication of Flavell, Beach, and Chinsky (1966): Spontaneous verbal rehearsal in a memory task as a function of age**
Advances in Methods and Practices in Psychological Science, 4(2).
https://doi.org/10.1177/25152459211018187
Elliott, E. M., Morey, C. C., AuBuchon, A. M., Adama, E., Attwood, M., ... **Graves, A. J.**, ... Voracek, M.

2021 **Genetic, epigenetic, and environmental factors controlling oxytocin receptor gene expression**
Clinical Epigenetics, 13(23). https://doi.org/10.1186/s13148-021-01017-5
Danoff, J. S., Wroblewski, K. L., **Graves, A. J.**, ... Connelly, J. J.

2018 **Registered Replication Report: Dijksterhuis and van Knippenberg (1998)**
Perspectives on Psychological Science, 13(2), 268-294. https://doi.org/10.1177/1745691618755704
O'Donnell, M., Nelson, L. D., Ackermann, E., Aczel, B., Akhtar, A., Aldrovandi, S., ... **Graves, A. J.**, ... Zrubka, M.

MANUSCRIPTS IN PREP

Domain-specific brain decoding for face stimuli captures individual differences in face recognition ability
Under review at *Journal of Cognitive Neuroscience*
Graves, A. J., Grabman, J. H., Morris, J. P., & Dodson, C. S.

Accelerated epigenetic aging associates with impaired cognitive performance in older adults
Under review at *Science Advances*
Graves, A. J., Danoff, J. S., Brindley, S. R., Kim, M., Giamberardino, S. N., Lynch, M. E., Straka, B. C., Lillard, T. S., Gregory, S. G., Connelly, J. J., Morris, J. P.

DNA methylation of the oxytocin receptor gene maps increases in conditioned learning rates at the late positive potential
Ready for submission; https://doi.org/10.18130/v3-2h6d-hd37
Graves, A. J., Connelly, J. J., & Morris, J. P.

Mental time travel in context: Does "off-topic" speech have affective consequences?
Currently under review
Emery, L., Hardin, K., **Graves, A. J.**, & Knight, R.

CONFERENCE PRESENTATIONS

2023 **Domain-specific brain decoding of face stimuli captures individual differences in face recognition ability**
Social and Affective Neuroscience Society — Santa Barbara, CA
Graves, A. J., Grabman, J. H., Morris, J. P., & Dodson, C. S.

2019 **Designing an fMRI/EEG Optimized Memory Task to Explore the Unique Determinants of Face Recognition Ability**
Association for Psychological Science — Washington D.C.
Graves, A. J., Grabman, J. H., Morris, J. P., & Dodson, C. S.

2019 **Investigating individual differences in the late positive potential**
Social and Affective Neuroscience Society — Miami, FL
Graves, A. J. & Morris J. P.

2018 **Evidence for two independent learning mechanisms via electrodermal responses to pictures**
Association for Psychological Science — San Francisco, CA
Graves, A. J.

2017 **Mental time travel in context: Semantic recall promotes positivity**
International Conference Aging and Cognition — Zurich, CH
Emery, L., Hardin, K., & **Graves A. J.**

2017 **Reexamining the TAR effect and its influence on attitude formation**
North Carolina Cognition — Greensboro, NC
Graves, A. J., & Steele K. M.

GRADUATE RESEARCH EXPERIENCE

2017 | 2023 **Social Neuroscience Lab**
PI: James P. Morris — UVA
• Applied machine learning methods to human brain data
• Studied face recognition, memory, and perceptual processes
• Pre-processed and analyzed functional MRI, EEG, and epigenetic samples

2015 | 2017

Perception Lab
PI: Kenneth M. Steele — ASU
- Tested theoretical learning models
- Focused on replication of putative cognitive science research
- Pre-processedd and analyzed psycho-physiological signals (e.g., electrodermal activity)

2016

Adult Cognitive & Emotional Development Lab
PI: Lisa Emery — ASU
- Teased apart age differences in cognitive ability vs. autobiographical memory recall
- Identified affective causes and consequences of memory specificity
- Interacted with aging populations in a research setting

HONORS AND AWARDS

2022
- Best Poster at UVA Program in Fundamental Neuroscience Retreat: "Exploring the use of Bluetooth wearables to assess physical distance between mother-infant dyads and its association with OXTR DNA methylation."

2021
- BaBI Transformative Neurodevelopment Pilot Grant (UVA Brain Institute)
- First Author of Best Paper Award in Health Track at Systems and Information Engineering Design Symposium (SIEDS)
- EXPAND National Science Foundation Research Traineeship (NRT)

2019
- Dean's MS-PhD Fellowship in Data Science Recipient

2017
- Student Faculty and Excellence (SAFE) fund research award
- Graduate Student Association Senate (GSAS) presentation travel award
- Office of Student Research (OSR) travel grant
- Wiley F. Smith Endowment (WiSE) travel award

2015
- Chancellor's Fellowship
- Out of State Tuition Remission Merit Scholarship
- Departmental Honors
- University Honors

GRADUATE TEACHING EXPERIENCE

2021-2023 — **School of Data Science Tutor**
Python, R, SQL, Statistics, Machine Learning

2022-2023 — **Linear Algebra for Data Scientists**
Online Module Format

January 2021 — **How to Build a Healthy Human Brain**
PSYC 3559

Spring 2020 — **Quantitative Methods II: Experimental Design**
PSYC 7720

Spring 2020
Research Methods: Electroencephalography
PSYC 5500

Fall 2019
Quantitative Methods I: Probability and Statistical Inference
PSYC 7710

Spring 2019 | Fall 2018
Psychobiology Laboratory
PSYC 3210

Spring 2018
Research Methods and Data Analysis I
PSYC 3005

Fall 2017
Introduction to Cognition
PSYC 2150

Fall 2017
Introduction to Learning
PSYC 2100

Spring 2017 | Fall 2016
Cognitive Psychology Laboratory
PSY 4217 (ASU)

2016-2017
Parliament Tutor University Representative
GRE-Quantitative

UNDERGRADUATE TRAINEES

2019 - 2021
• Luke Cavanah: Harrison Award Recipient; DMP thesis supervision

2018 - 2020
• John Hissong: DMP thesis supervision
• Ramya Ravi
• Inaiyat Sidhu

2018
• Megan Do
• Rebecca Schelling

2017
• Meghan Pavelka
• Elijah Richardson

UNIVERSITY AND DEPARTMENT SERVICE

AY 22-23
• UVA-IMT Lucca Brain and Quantitative Sciences Virtual Seminar Coordinator

AYs 19-23
• Cognitive Area Representative
• Shared Software Committee

AY 18-19
• Cognitive/ Neuroscience Area Lunch Coordinator
• Graduate Curriculum Subcommittee