Cade Abrams, PhD

As an accomplished data scientist and human performance researcher, I excel in cleaning, analyzing, and managing data sets to derive technical insights to advance research and inform decisions. My passion lies in solving complex problems by leveraging advanced analytical techniques in the field of human performance. Trained as an interdisciplinary scientist and educator, I am skilled in effectively communicating complex results to technical and non-technical audiences.

EXPERIENCE

Aug 2022 | Nov 2023

Postdoctoral Research Fellow – Data Scientist

University of South Carolina — Columbia, South Carolina

- Conduct advanced statistical analyses using R, including regression modeling and hypothesis testing, to extract meaningful insights for academic manuscripts.
- Apply innovative data processing techniques, enhancing sensitivity to developmental changes resulting in effect sizes 3 times larger than traditional techniques.
- Collaborate with cross-functional and international teams to conduct statistical analyses, optimize data processing, and ensure the success of ongoing research projects.
- Manage project workflows effectively on GitHub, streamlining research processes through version control and collaborative tools.

Aug 2019 | Aug 2022

Doctoral Graduate Assistant

University of South Carolina — Columbia, South Carolina

- Collaboratively managed a 4-year project through data collection, management, cleaning, and predictive modeling to advance motor skill and cognitive assessments resulting in 5 publications and 12 presentations.
- Saved 42 manual hours across 8 data collections with custom R functions, designed to improve data processing efficiency and reduce data entry errors.
- Developed custom data indices for ROTC yielding actionable insights to optimize training, resulting in a 16% increase in ACFT pass rates across 1.5 years (~135 Cadets in sample).

CONSULTING & VOLUNTEER WORK

Oct 3 | Oct 19, 2022

Human Performance Consultant

Arsenal Fitness — Muncie, Indiana

- Offered expert advice on optimizing physical military readiness, reducing injuries, and recruiting for a successful human performance program with Arsenal Fitness.

Aug 2019 | May 2022

Strength and Conditioning Coach

University of South Carolina Army ROTC — Columbia, South Carolina

- Collaborated with athletic trainers and Army ROTC Cadre to design and lead functional strength training programs to promote physical military readiness in 150+ Cadets.
- Oversaw and educated groups of 2-5 interns to conduct human performance research and training.

Jun 14 | Jun 28, 2020

Human Performance Consultant

United States Army Physical Fitness School (USAPFS) — Ft. Jackson, South Carolina

- Audited 'Master Fitness Trainer Course' and provided expert insights to align instruction and content for peak performance.

Sep 2019 | Mar 2020

Physical Training Instructor

Eau Claire High School — Columbia, South Carolina

- Developed and executed bi-weekly physical training regimen for 80 Navy Junior Reserve Officer Training Corps Cadets.

CONTACT INFO

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github.com/Tcabrams44
cade-abrams-phd

For more information, please contact me via email.

EDUCATION

BS in Exercise Science

Lander University
Aug 2017

MAT in Physical Education

University of South Carolina
Aug 2019

PhD emphasis in Motor Behavior

University of South Carolina
Dec 2022
Subspecialties in: **Statistics** and **Cognitive Neuroscience**

SKILLS

- R
- Python
- Statistical Analysis
- Version Control
- Experimental Design
- Microsoft Excel
- Training Methodology
- Human Performance
- Cognitive Neuroscience

Certifications

Certified Strength and Conditioning Specialist (CSCS)

2018 – Present

USA Weightlifting Level 1

2022 – Present

SELECT PROJECTS

Summer 2023

3-D Model of Motor and Cognitive Solutions

https://github.com/Tcabrams44/complexity-dual-task-conceptual

Python code creates 3 visual diagrams, simplifying complex motor-cognitive relations for non-technical audiences.

- Interdisciplinary Research
- Jupyter Notebook
- Data Visualization
- Creativity

Spring 2023

Beyond Traditional Approaches: Examining the Impact of SKIPping with PAX on Post-Error Slowing in Rural Preschoolers

https://osf.io/jyzpx/?view_only=24a908b0a4c842b2843f43a4a37bfd73

Open Science Framework project for statistical analysis of cutting-edge data processing methods in an academic manuscript.

- Quantitative Analysis
- Data Interpretation
- Data Visualization
- Hypothesis Testing

Spring 2021

Custom R Script for Processing and Scoring Army Combat Fitness Test Results

https://github.com/Tcabrams44/ACFT-Custom-Script

R functions score raw ACFT event data, including times, accurately and efficiently.

- Custom Functions
- Automation
- Data Wrangling
- Data Processing

SELECT PUBLICATIONS

2023

The Functional Movement Screen and Self-reported Injury in Senior Military College Cadets

In *Military Medicine*. (*Online*). Oxford University Press (OUP). https://doi.org/10.1093/milmed/usad285

Hand, A.F., Hong, S., Pfiefer, C.F., Stodden, D.F., Haugen, K., Terlizzi, B.M., **Abrams, T.C.**, Yee, K., Spalding, D., Dubina, M., Bellon, C.R., Grieve, G.L., Sole, C.J., & Sacko, R.S.

2022

The Relationship Between Functional Motor Competence and Performance on the Army Combat Fitness Test in Army Reserve Officer Training Corps Cadets

In *Military Medicine*. *188* (7-8). Oxford University Press (OUP). https://doi.org/10.1093/milmed/usab537

Terlizzi, B.M.,**Abrams, T.C.**, Sacko, R.S., Hand, A.F., Silvey, K., & Stodden, D.F.

2021

The Potential Role of Functional Motor Competence to Promote Physical Military Readiness: A Developmental Perspective

In *Military Medicine*. (No. 9-10; Vol. 186, pp. 242-247). Oxford University Press (OUP). https://doi.org/10.1093/milmed/usab043

Silvey, K., Porter, J., Sacko, R.S., Hand, A.F., Terlizzi, B.M., **Abrams, T.C.**, & Stodden, D.F.

Commonly Used Libraries

R

broom · conflicted · dplyr · ggplot2 · Hmisc · lubridate · magrittr · purr · readr · stringr · tibble

Python

glob · ipywidgets · Matplotlib · NumPy · os · pandas · PsychoPy · random · scikit-learn · shutil