

Matthew Andreotta

POSTDOCTORAL FELLOW · PSYCHOLOGY · DATA SCIENCE

*Environment,
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Personal

Date of Birth January 1992

Citizenship Australian

Research Interests

Broadly, my research investigates the drivers of belief. I'm interested in the drivers of individual and societal viewpoints, to pivotal issues of climate change, the environment, politics, conspiracy theories, health, and research integrity. To explore these varied issues, I use varied research designs, including surveys, psychological experiments, and studies of Internet data.

Education

PhD Psychology

UNIVERSITY OF WESTERN AUSTRALIA

2016 - 2021

Thesis title: Mental models under ideological constraints: The psychological signatures underscoring audience segments of climate change.

Supervisors: Dr. Mark Hurlstone, Dr. Fabio Boschetti, Prof. Simon Farrell, Dr. Cecile Paris, & Prof. Iain Walker

BSc Honours (Psychology)

UNIVERSITY OF WESTERN AUSTRALIA

2015

Thesis title: Mental models of climate change: Using analogies to improve our predictions of the future.

Supervisors: Dr. Mark Hurlstone, Prof. Iain Walker, & Dr. Fabio Boschetti

BSc Psychology

UNIVERSITY OF WESTERN AUSTRALIA

2013 - 2014

Professional Experience

- 2022-2024 **Postdoctoral Fellow**, Environment, Commonwealth Scientific and Industrial Research Organisation.
- 2022 **Research Scientist**, The Dementia Centre, HammondCare.
- 2021 **Research Consultant**, Self-owned business.
- 2021 **Research Assistant**, for Dr. Lucy Robinson, at Oceans & Atmosphere, Commonwealth Scientific and Industrial Research Organisation.
- 2021 **Administrator**, School of Psychological Science, University of Western Australia.
- 2020 **Research Scientist**, Data61, Commonwealth Scientific and Industrial Research Organisation.
- 2018 **Research Assistant**, for Dr. Alice Mason, School of Psychological Science, University of Western Australia.

Publications

PEER-REVIEWED MANUSCRIPTS - PUBLISHED OR IN PRESS

Spillias, S., Paris, T., **Andreotta, M.**, Annand-Jones, R., Boschetti, F., Cvitanovic, C., Duggan, J., Fulton, E., Karcher, D., Paris, C., Sherlock, R., & Trebilco, R. (in press). Human-AI Collaboration to identify literature for evidence synthesis. *Cell Reports Sustainability*.

- Atee, M., **Andreotta, M.**, Lloyd, R., Whiting, D., Alford, M., & Morris, T. (2023). Does pain matter in the Australian Royal Commission into Aged Care Quality and Safety? A text mining study. *Aging and Health Research*, 3(1), 1-6
- Andreotta, M.**, Boschetti, F., Farrell, S., Paris, C., Walker, I., & Hurlstone, M. J. (2022). Evidence for three distinct climate change audience segments with varying belief updating tendencies: Implications for climate change communication. *Climatic Change*, 174(32), 1-29.
- Atee, M., **Andreotta, M.**, Morris, T., & Alford, M. (2022). Psychotropic polypharmacy in people with neuropsychiatric symptoms referred to an Australian dementia support service. *Alzheimers & Dementia*, 18, 1.
- Calder, S., **Andreotta, M.**, Morris, T., & Atee, M. (2022). Improving quality in pastoral care using the Pastoral Care Activity Tracker (PCAT): A feasibility study of a digital tool within an Australian healthcare organization. *Journal of Health Care Chaplaincy*, 1-16.
- Ecker, U. K. H., Sze, B. K. N., & **Andreotta, M.** (2021). Corrections of political misinformation: No evidence for an effect of partisan worldview in a U.S. convenience sample. *Philosophical Transactions of the Royal Society B*, 376(1822), 1-8.
- Andreotta, M.**, Nugroho, R., Hurlstone, M. J., Boschetti, F., Farrell, S., Walker, I., & Paris, C. (2019). [Contribution to special issue on “Using Big Data to Discover Principles of Cognition”] Analyzing social media data: A mixed-methods framework combining computational and qualitative text analysis. *Behavior Research Methods*, 51(4), 1766–1781.
- Boschetti, F., & **Andreotta, M.** (2017). Mental models, communication, and engagement in marine projects. *ICES Journal of Marine Science*, 74(7), 2034–2039.

LETTERS TO THE EDITOR - PUBLISHED OR IN PRESS

- Andreotta, M.**, Atee, M., Morris, T., & Alford, M. (2022). Comments on Westera et al. (2022), “Support for people with dementia experiencing severe responsive behaviours: Unpacking the disconnect between policy and practice”. *Australasian Journal on Ageing*, 1-2.

SELECTED MANUSCRIPTS - IN PREPARATION

- Andreotta, M.**, Boschetti, F., Farrell, S., Paris, C., Walker, I., & Hurlstone, M. J. (2024, in preparation). Little evidence that megafires alter climate change views.
- Andreotta, M.**, Mocatta, G., Lubicz-Zaorski, C., Morrison, T., van Putten, I., Pecl, G. (2024, in preparation). The trajectory of misleading marine climate narratives through government, traditional media, and social media.
- Andreotta, M.**, Condie, C., Boschetti, F., & Condie, S. (2024, in preparation). The sensitivity of automated natural language processing tools for detecting sentiment: an application to Tasmanian salmon aquaculture newspaper articles.
- Andreotta, M.**, Boschetti, F., van Putten, I., Paris, C., Walker, I., & Hurlstone, M. J. (2024, in preparation). Approaches for the automated detection of moral language.
- Hori, J., **Andreotta, M.**, Makino, M., Lew, D., Boschetti, F., Thébaud, O., Leonardi, S., Krien N., (2024, in preparation). The characteristics and antecedents of global ocean attitudes.

Awards, Fellowships, & Grants

AWARDS

2023	Responsible Innovation Project Call , Commonwealth Scientific and Industrial Research Organisation.	\$ 298,000
	Awarded for the project: <i>Low conflict pathways to renewable energy: using predictive models to reduce social risk</i>	
	Sustainability Research Grant , Lancaster University.	
2020	Awarded for the project: <i>Moral determinants of support for, and opposition to, climate activism</i>	£ 10,000
	Outreach initiative , Lawrence Wilson Art Gallery, University of Western Australia.	
	Awarded for the project: <i>The Ocean Project</i> to communicate complex ideas relating to the ocean	
2020	Graduate Research School's Publication Award , University of Western Australia.	\$ 500
	A yearly award issued for the best Quantitative Social Science publication by a higher degree student. Awarded for: <i>Analyzing social media data: A mixed-methods framework combining computational and qualitative text analysis.</i>	

2019	Research on Research Integrity Grant , Office of Research Integrity, U.S. Department of Health and Human Services. Awarded for the project: <i>Evaluation of Twitter as a post-publication peer review mechanism to identify responsible conduct of research concerns.</i>	\$ 139,183
2016	Postgraduate Top-Up Scholarship for “Gaining insights from social networks” , Data61, Commonwealth Scientific and Industrial Research Organisation. Research Training Program Stipend , Department of Education, Skills and Employment.	\$ 51,000 \$ 105,000

Presentations

* *presenting author*

INVITED TALKS

- Fulton, E.*, Boschetti, F.* & **Andreotta, M.*** (2024). *Challenges in ocean research—how might art help?*. Presented for the Lawrence Wilson Art Gallery, University of Western Australia.
- Cavve, B.* & **Andreotta, M.*** (2023). *Science is a liar (sometimes): Questionable practices in research and communication*. Presented for Telethon Kids Institute.
- Andreotta, M.*** (2023). *The psychological roots of the rejection (and acceptance) of science*. Presented for Centre for Marine Socioecology.
- Andreotta, M.*** (2019). *Analysing social media: A mixed-methods framework for combining computational and text analysis*. Presented for Data61, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Sydney, Australia.
- Andreotta, M.*** (2019). *Tweeting about climate change: Blending data science and psychology to analyse social media*. Guest Speaker for ENVT2221 (Global Climate Change and Biodiversity), University of Western Australia.
- Andreotta, M.*** (2019). *Tweeting about climate change: Blending data science and psychology to analyse social media*. Presented for Oceans & Atmosphere, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Perth, Australia.
- Andreotta, M.*** & Cavve, B.* (2018 & 2019). *Science is a liar (sometimes): Questionable practices in research and communication*. Guest Speaker for PSYC3303 (Psychological Science in the Modern World), University of Western Australia.
- Andreotta, M.*** & Wang, S.* (2016). *It's (not) about climate change*. Guest Speaker for PSYC3303 (Psychological Science in the Modern World), University of Western Australia.

CONFERENCE PRESENTATIONS

- Andreotta, M.***, Paris, C., van Putten, I., Hurlstone, M. J., Walker, I., & Boschetti, F. (2023). *Detecting and responding to moralised misinformation*. Presented at the Understanding and Countering Mis/Disinformation Workshop, Melbourne, Australia.
- Andreotta, M.*** (2019). *Analysing social media: A mixed-methods framework for combining computational and text analysis*. Presented at the Australasian Mathematical Psychology Conference, Melbourne, Australia.

Teaching Experience

- 2016-2019 **PSYC3303: Psychological Science in the Modern World**, Tutor.
This unit provides students with psychological theories, methods, and evidence for understanding and solving contemporary social problems. Additionally, students are taught the skills necessary to communicate science to key stakeholders. The topics of the unit vary year to year as key social issues and psychological evidence change. I was responsible for developing and delivering tutorials to equip students with knowledge of psychological theory and evidence, as well as the skills to think critically and communicate to laypeople and stakeholders. I have delivered several guest lectures for the unit. In 2016, I delivered a lecture providing cognitive psychological insights into the apparent inconsistencies of public perceptions on climate change. In later years, I delivered a lecture equipping students with critical thinking skills to examine science and science communication.
University of Western Australia
- 2018 **PSYC 3310: Specialist Research Methods (Behavioural Economics)**, Tutor.
This unit provides students with the opportunity to learn about and perform research in a specialist topic area of psychology. Students are provided with seminars on psychological theories, methods, and evidence of a topic area, as well as skill-orientated tutorials. I tutored a class on behavioural economics research. As a tutor, I was responsible for teaching students to prepare ethics applications, prepare research proposals, design and run studies, analyse data, and prepare research reports.
University of Western Australia

Research Supervision

- 2019 **Julia Nunn**, Honours, University of Western Australia (co-supervised with Mark Hurlstone).
Emma Sharpe, Honours, University of Western Australia (co-supervised with Mark Hurlstone).
Matthew Mortimer, Honours, University of Western Australia (co-supervised with Mark Hurlstone).

Service and Outreach

OUTREACH

- 2019 **School of Indigenous Study's Science Camp for High-School Students, University of Western Australia**, Presenter.
School of Psychological Science's Psyched@UWA Event for High-School Students, University of Western Australia, Presented an interactive behavioural economics activity.
ASPIRE Camp for High-School Students, University of Western Australia, Presented an interactive behavioural economics activity.

SERVICE

- 2019 **Post-graduate Representative**, Working Group on Addressing and Resolving Conflicts with Supervisors, School of Psychological Science, University of Western Australia.
Committee Member, Working Group on Gendered Discrimination and Misconduct, School of Psychological Science, University of Western Australia.
Co-director, OpenLab, School of Psychological Science, University of Western Australia. A student-led group to disseminate research and learn about open-science principles.
Assisted in Operations, Pint of Science, Perth, Western Australia.

- 2018 **Assisted in Conference Operations**, Australasian Mathematical Psychology Conference, Perth, Western Australia, Australia.
- 2017 **Post-graduate Representative**, Gender Diversity Panel, School of Psychological Science, University of Western Australia.

PEER REVIEW

I am an ad hoc reviewer for *Behavior Research Methods* and *Environmental Science and Policy*.

Technical Skills

I have eight years of experience using *R* and \LaTeX to produce manuscripts for scientific journals. I am experienced with other programming languages, such as *Python*, *JavaScript*, and *MATLAB*, as well as popular statistical programs used in psychology, such as *SPSS* and *JASP*. I am proficient with tools for data storage and sharing, such as *Git*, *Apache Arrow* and *MySQL*, as well as data repositories, such as *Github*, *Bitbucket*, and the *Open Science Framework*.

I am well-versed in experimental and survey research designs. For example, my understanding of *Qualtrics*, *JavaScript*, and *R* has allowed me to code complex experiments and custom Internet interfaces for online studies. I am experienced with hosting custom and secure web applications on servers, with the use of virtualisation software (that is, *Docker*). Additionally, I am experienced with the automated collection of Internet data, through the use of Application Programming Interfaces or web scraping.

Broadly, I am skilled with quantitative, qualitative, and mixed-methods research approaches. Regarding quantitative techniques, I am competent with methods to handle large and complex data, such as mixed-effects modelling, regression analyses (e.g., ridge and lasso), and bootstrapping methods. I can use natural language processing techniques to model text data, such as the identification of sentiment, emotions, moral language, and topics. Concerning qualitative techniques, I am experienced in text analysis, such as thematic analysis and content analysis. Lastly, I have expertise in blending quantitative and qualitative analyses under mixed-methods frameworks, such as my four-phased framework [1] and integrating insights from quantitative survey data with insights from text responses to open-ended questions.

REFERENCES

- [1] Andreotta, M., Nugroho, R., Hurlstone, M. J., Boschetti, F., Farrell, S., Walker, I., & Paris, C. (2019). Analyzing social media data: A mixed-methods framework combining computational and qualitative text analysis. *Behavior Research Methods*, 51(4), 1766–1781.