Stephen Francis Mann

Curriculum Vitae
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stephenfmann@gmail.com
stephenmann.isaphilosopher.com

DOCTORAL RESEARCH

Communication and cooperation in evolutionary biology

My research examines the use of concepts and mathematical tools from communications engineering in evolutionary biology.
I have argued that formal methods at the heart of communication theory, appropriately generalised, afford insight into biological communication. Future work will support this account by outlining the relationship between evolutionary cooperation and communication. Formally, this means exploring the links between game theory and communication theory.
As a contribution to the philosophy of biology and the philosophy of science more broadly, this work benefits genetics, cognitive science, animal signalling theory and microbiology.

AOS: (Philosophy of:) biology, science, information and computation.
AOC: (Philosophy of:) language, cognitive science, mathematics; Bioethics; Logic; Computational modelling.

EDUCATION

2016 – PRESENT **Doctor of Philosophy**
IN PROGRESS
Philosophy
Australian National University

2013-2015 **Doctor of Philosophy**
CANDIDACY WITHDRAWN TO ATTEND ANU
Philosophy
King's College London

2006 – 2010 **Master in Science**
FIRST CLASS HONOURS
Mathematics and Philosophy
University of Bristol, UK

PUBLICATIONS

Mann, S. F. (2018). Consequences of a functional account of information. *Review of Philosophy and Psychology*, 1-19. 10.1007/s13164-018-0413-4
Summary: Defining information with respect to the function of its user opens the door to realist interpretations in cognitive science, microbiology and elsewhere.

Mann S. F. (2018). Attribution of information in animal interaction. *Biological Theory*, 13 (3), 164-179. 10.1007/s13752-018-0299-5
Summary: Responding to scepticism about the use of information theory in behavioural ecology, I demonstrate how quantification of the honey bee waggle dance captures forager accuracy.

Mann S. F. and Jessica Pfeifer (2018). Review of *Studying Animal Languages Without Translation: An Insight from Ants* by Zhanna Reznikova. *Quarterly Review of Biology*, 93 (1), 38. 10.1086/696753

TEACHING

JULY - NOV 2017

Australian National University
Academic Staff

I lead seminars in **Biology, Society and Ethics** and the **Philosophy of Biology**. Skills gained include:

- **Lectures**: Delivering four guest lectures of two hours each
- Researching, selecting and presenting material on diverse topics including the ethics of human enhancement and autonomous weapons, biological information, formal modelling, and major evolutionary transitions
- Selection of apt reading material and assignment questions
- **Seminars**: Building on skills gained during previous employment (see below) with a variety of techniques: whole group discussion, small-medium group work, preparation and presentation of arguments and responses
- Mediating discussion of challenging and sometimes confronting topics including reproductive ethics, disability rights, racial realism, moral psychology, eugenics and unethical human experimentation.
- Marking summative essays (300-2000 words), giving specific and general feedback to improve prose, argument, presentation and referencing skills.

SEPT 2014 - JAN 2015

King's College London
Graduate teaching assistant

Leading seminars in the subjects **Philosophy of Science** (*second-year course*), **Intermediate Logic** (*second-year course*) and **Elementary Logic** (*first-year course*), I taught students at all levels of undergraduate philosophy. The preparation and marking for each subject was quite involved. Skills gained include:

- Effectively leading seminars and discussion groups with up to twenty undergraduate students
- Guiding students through difficult topics by first focusing on key aspects of new material before working through complex examples in depth
- Managing multiple students at different skill levels through careful small-group work
- Patience and understanding when working with struggling students outside lesson time.

IN PROGRESS

Mann, S. F. and Ross Pain (under review). Teleosemantics and the hard problem of content.
Summary: Recent work in the radical enactivist approach to cognition grossly misinterprets Millikan's account of representation which, properly understood, overcomes traditional objections.

EMPLOYMENT, NON-ACADEMIC

SEPT 2010 - MAR 2013

Weaveability Limited
Developer

Software Company based near Manchester, UK specialising in SAP eCommerce and Netweaver Solutions. Skills gained include:

- Responsibility for own projects, delivering consistently on time or ahead of schedule
- Responsibility for own learning and progress during projects
- Inference of abstract patterns from concrete examples
- Quickly learned programming skills without prior experience
- Helped to teach others in a holistic work environment
- Gained experience in design and execution of both server-side and web-based software.

REFERENCES

Professor Kim Sterelny

RELATION PhD Supervisor
POSITION Professor
EMPLOYER Department of Philosophy
Australian National University

EMAIL kim.sterelny@anu.edu.au

Dr Rachael Brown

RELATION Course convenor, Philosophy of Biology
POSITION Lecturer
EMPLOYER Department of Philosophy
Australian National University

EMAIL rachael.brown@anu.edu.au

Dr Justin Bruner

RELATION PhD Supervisor
POSITION Assistant Professor
EMPLOYER Department of Theoretical Philosophy
University of Groningen

EMAIL justinpbruner@gmail.com

ORAL PRESENTATIONS

Prediction and Uncertainty *with Ross Pain*
2018 DEC *Australasian Society for Philosophy and Psychology*
Macquarie University
Sydney, Australia

Applied cultural evolution: Studying language change with evolutionary methods
2018 SEPT *Evolving Minds*
Charles Darwin University
Darwin, Australia

Communication and selection
2018 JUNE *Department of Linguistic and Cultural Evolution*
Max Planck Institute for the Science of Human History
Jena, Germany

Unitrackers in artificial and natural cognition
2018 FEB *Naturally Evolving Minds*
University of Wollongong
I spoke about information processing in neural networks, focusing on its relation to digital computation and signalling games. I framed the discussion around 'unitrackers', theoretical faculties devised by Ruth Millikan to explain human representational and inferential abilities.

Natural information and naturalistic intentionality
2016 DEC *10th LOGOS Workshop*
University of Barcelona

The 10th LOGOS Workshop was a significant event for research programs connected with naturalistic approaches to meaning. Since my thesis subject is located firmly within this paradigm, I submitted a paper for presentation and was the only graduate student accepted from among a competitive field.

SERVICES TO THE PROFESSION

Ad hoc reviewing
Biology and Philosophy

Conference organisation
2016 NOV *ANU Philosophy Graduate Conference*
Lead Organiser
Duties included liaising with accommodation and conference facilities management, communicating with attendees, and chairing presentations.

2016 SEPT *Australasian Postgraduate Philosophy Conference*
Co-organiser
Duties included communicating with attendees, chairing sessions, and coordinating small social events.