



# Australian Citizen Science Association

## **CITIZEN SCIENCE AND BIODIVERSITY IN THE AGE OF ARTIFICIAL INTELLIGENCE**

**A WORKSHOP**

**OCTOBER 31ST 2017**



Centre for  
Biodiversity  
Analysis



Australian  
National  
University



**QuestaGame**

### **AUSTRALIAN MUSEUM**

1 William Street Sydney  
NSW 2010 Australia  
T 61 2 9320 6000  
[australianmuseum.net.au](http://australianmuseum.net.au)



**190**  
YEARS  
1827 > 2017

October 2017

# Citizen Science and Biodiversity in the Age of Artificial Intelligence

## Background

There's little doubt that Artificial Intelligence has the potential to radically transform our world. Perhaps it's already doing so. In the fields of citizen science and biodiversity research, it offers some extraordinary opportunities - from the instant visual recognition of species to deep environmental insights generated out of big data analysis. These same developments also raise numerous questions about the impact A.I. will have on humanity and the natural environment. This workshop will examine the risks and opportunities presented by A.I. in the fields of citizen science and biodiversity. What are some of the key issues that researchers, practitioners, policy makers and the general public are or should be thinking about?

## Schedule:

8:30 to 9.15

- Morning Coffee

9.15 to 9.30

- Introduction and aims of the day – Erin Roger

9.30 to 10.00

- AI and Nature (20 minute talk + 10 minute discussion), Andrew Robinson, QuestaGame and the Centre for Biodiversity Analysis, ANU

10.00 to 10.45

- Examples of AI in biodiversity/citizen science - Katina Michael, University of Wollongong
- "Indigenous knowledge is core to environmental sustainability" - Luke Brisco, IndigiLabs
- "Digitising biodiversity – An AI and Citizen Science partnership" Paul Flemons, Australian Museum
- AI, iNaturalist and Citizen Science - Scott Loarie, iNaturalist
- GBIF and AI - Donald Hobern, GBIF

11.00 to 11.20

- Morning Tea

11.20 to 12.00

- Breakout groups: risks and opportunities
  - 5 breakout groups
  - 20 mins breakout
  - 20 mins presentation/discussion

12.00 to 12.30

- Summary, wrap up, going forward, paper.

12.30 to 13.30

- Lunch (provided)

**When:**

Tuesday Oct 31, 2017 8:30am – 1:30pm (AEDT)

**Location:**

Place: Harbour View Room Terrace at the Australian Museum

**Please Note: The meeting location has been changed and we are now meeting in the Harbour View Room Terrace.**

**So please come to the **Crystal Hall Entrance on William St****

**Some questions to think about** (feel free to add your own for circulation)

1. How to measure success for A.I. Cit Sci/Biodiversity project? Is it “the value created for human lives?” (see Stanford Report on AI, 2016)
2. How to prevent data/AI bias with Citizen Science Projects? (O’Neil, 2016)
3. How to ensure transparency and prevent “Black Box” dilemmas (Boddington, 2017)
4. Do the users of the AI know they are also teaching the AI? Are they rewarded for it? How? Can the system recognise and reward high levels of expertise/intelligence, or is everyone treated the same? (Robinson & Robinson, 2017)
5. Are users offered a choice between teaching AI or teaching other people, e.g. young minds, or people actively seeking to learn? Or maybe doing both simultaneously? (Ibid, 2017)
6. Are there ethical differences between, say, humans teaching AI how to ID wildlife versus humans teaching, say, Amazon Echo about how to select a good movie to download? (Ibid, 2017)
7. Should A.I. species identification tools include the knowledge of marginalised people, first nation people, obscure languages, etc? Why or why not? And if so, how? (Crawford and Schultz, 2014)
8. If the AI project is using data collected in the past, did the contributors of this data know the data would be used to teach A.I.? Was permission granted? In what ways is their unique contribution valued or rewarded? (Robinson & Robinson, 2017)
9. Is it important to apply guidelines and standards to Citizen Science and Biodiversity? (Boddington, 2017)
10. Is there a role for humanists in the development of A.I. - e.g. ethicists, philosophers, historians, artists, communications scholars, etc (Moor, 2005)