Journal Articles - Conference Proceedings Articles Dissertations - Books & Chapters

From the moderator

Thank you to everyone who contributed to this issue of the ACSA Publications Listing.

The ACSA Publication Listing is a quarterly electronic listing of publications in the field of citizen science within the Australian community. The listing is intended to share information with those interested in the Australian citizen science community.

If you are interested in obtaining a copy of one of the papers below, you can email the lead author who may send you a copy at their discretion.

Colleen Foelz

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Abstracts of recently published journal articles

Opportunities and Risks for Citizen Science in the Age of Artificial Intelligence

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Members of the public are making substantial contributions to science as citizen scientists, and advances in technologies have enabled citizens to make even more substantial contributions. Technologies that allow computers and machines to function in an intelligent manner, often referred to as artificial intelligence (AI), are now being applied in citizen science. Discussions about guidelines, responsibilities, and ethics of AI usage are already happening outside the field of citizen science. We suggest such considerations should also be explored carefully in the context of citizen science applications. To start the conversation, we

offer the citizen science community an essay to introduce the state-of-play for AI in citizen science and its potential uses in the future. We begin by presenting a systematic overview of AI technologies currently being applied, highlighting exemplary projects for each technology type described. We then discuss how AI is likely to be increasingly utilised in citizen science into the future, and, through scenarios, we explore both future opportunities and potential risks. Lastly, we conclude by providing recommendations that warrant consideration by the citizen science community, such as developing a data stewardship plan to inform citizens in advance of plans and expected outcomes of using data for AI training, or adopting good practice around anonymity. Our intent is for this essay to lead to further critical discussions among citizen science practitioners, which is needed for responsible, ethical, and useful use of AI in citizen science.

Using Citizen Science to Explore Neighbourhood Influences on Ageing Well: Pilot Project

Barrie, H[1], Soebarto, V[2], Lange, J[1], Mc Corry-Breen, F[1] and Walker, L[1]

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Outdoor and indoor environments impact older people's mobility, independence, quality of life, and ability to "age in place". Considerable evidence suggests that not only the amount, but also the quality, of public green spaces in the living environment is important. The quality of public green spaces is mostly measured through expert assessments by planners, designers and developers. A disadvantage of this expert-determined approach is that it often does not consider the appraisals or perceptions of residents. Daily experience, often over long periods of time, means older residents have acquired insider knowledge of their neighbourhood, and thus, may be more qualified to assess these spaces, including measuring what makes a valued or quality public green space. The aim of this Australian pilot study on public green spaces for ageing well was to test an innovative citizen science approach to data collection using smart phones. "Senior" citizen scientists trialled the smart phone audit tool over a three-month period, recording and auditing public green spaces in their neighbourhoods. Data collected included geocoded location data, photographs, and qualitative comments along with survey data. While citizen science research is already well established in the natural sciences, it remains underutilised in the social sciences. This paper focuses on the use of citizen science with older participants highlighting the potential for this methodology in the fields of environmental gerontology, urban planning and landscape architecture.

Reviving an Old and Valuable Collection of Microscope Slides Through the Use of Citizen Science

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Since the federation of Australia in 1901 Geoscience Australia, and its predecessor organisations, have amassed a significant collection of microscope slides of a variety of physical samples from across Australia, Antarctica, and adjacent regions. The extensive nature of the collection and the diverse and often remote nature of the source locations means that the cost of recreating the collection, if possible, would be $AU100Ms. The original samples were collected as part of either extensive government geological mapping programs or more specific scientific expeditions conducted for major Government initiatives. They are technically open to anyone (industry, educational institutions, the public), but are essentially unknown and almost impossible to access.

Management of this collection was based on an aged card catalogue and ledger system developed in the pre-digital era. The aged management system, with increasing deterioration of the physical media, combined with loss of access to even some of the original contributors meant that rescue work was needed. Rescuing the collection made use of non-traditional means, including the extensive use of web-based citizen science and reference to a small number of onsite volunteers.

Through essentially a volunteer effort, from a group more used to biology related items, the project has seen the transcription of some 40,000 sample metadata records (more than 2.5 times our current electronic holdings). This paper examines the process undertaken and advocates the approach that has made it successful. It promotes the value and benefits to Geoscience Australia, participating volunteers and potential users of the collection.

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