CitSci - AI Grand Challenges

Julia K Parrish, COASST, University of Washington

For hands-on citizen science, retention can be a major issue, literally keeping people active in the program for long enough that they become experts at whatever task(s) they are being asked to do, to the point of (near) perfection, and even innovation. For living natural resource (biodiversity) projects, expertise surrounding accurate identification of a thing (e.g., taxa, behavior, phenological stage, life history stage) is a paramount task, whether the project/program is direct (participant physically engaged in outdoors work) or indirect (participant is digitally engaged with images).

With the advent of artificial intelligence and machine learning, it is more and more possible to train an application to "learn" image identification. This opens the door for massive data analysis, and particularly in taxa identification from photographs. Which is great! Or, is it?

In hands-on biodiversity citizen science, one of the key aspects of retention is giving the participants "Aha!" moments, those times when their emerging expertise within the project/program is put to use in service of making a (correct) deduction. Relegating participants to data collectors in service of AI identification (e.g., taking the photographs, collecting other identification-relevant evidence) removes the "Aha!" and, I believe, could significantly shorten retention times, and possibly even shift recruitment.

A grand challenge is how to use AI/ML in service of accuracy and working at scale, while preserving the ability for the participants to go from legitimate peripheral participants to experts within their community of practice.