Motivating Citizen Scientists with a Classification Game

Kevin Crowston[1], Nathan Prestopnik[1] & Andrea Wiggins[2]

[1]*Syracuse University School of Information Studies* & [2]*DataONE, University of New Mexico*

crowston@syr.edu, http://crowston.syr.edu/, http://citizensort.org/

Project goals

- Develop and test systems to support citizen science projects
  - Game-like features
  - Both human and computational elements

Research questions

RQ1: Can tasks be designed that non-expert users can perform with good data quality?

RQ2: Will systems with game features be more motivating for users?

System design

- Based on case studies
  - Wide variety of functionality
  - Must be motivating & satisfying
  - Game-like features rarely included
- Investigating systems for classifying species in photographs (e.g., moths)
  - Classification done by determining state of multiple characters of a specimen (e.g., wing color is blue)

Tool-like

Hunt and Gather
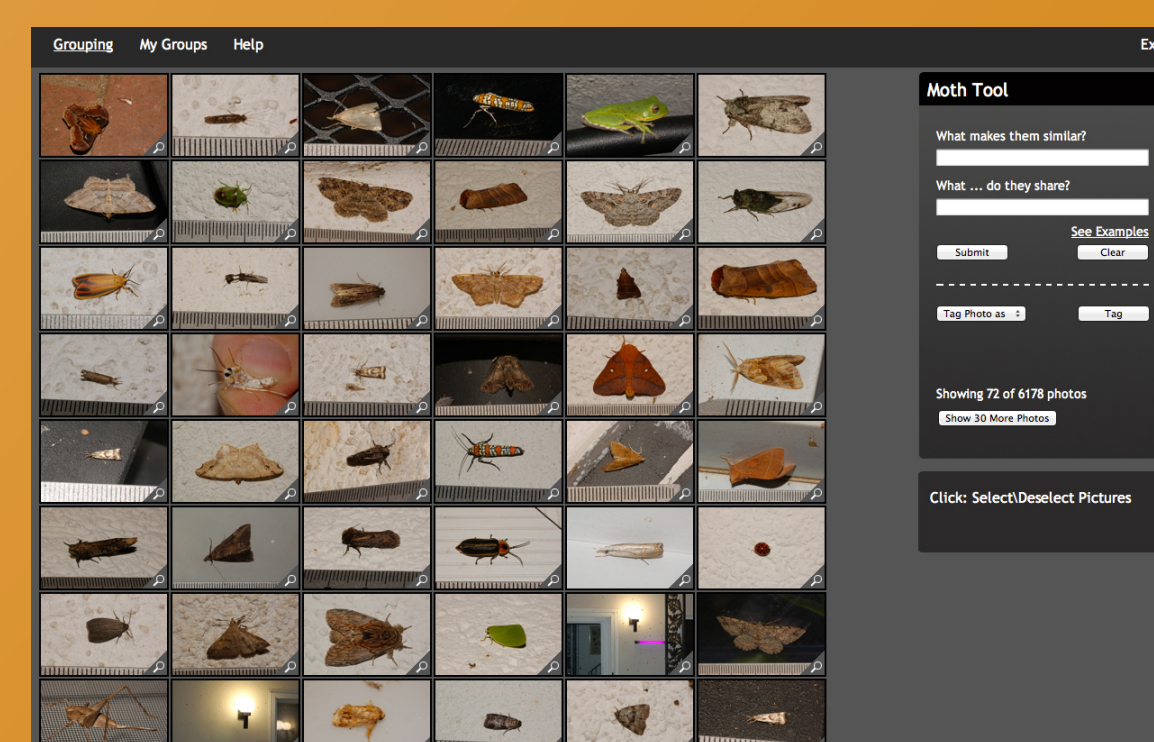
Tool to develop classification

Happy Match

Simple sorting game

Forgotten Island

Fantasy point-and-click adventure; tasks earn game credit

Game-like

Current status

- Completed Amazon Mechanical Turk trials with Happy Match to classify moths
  - 227 users played 433 games: 10K sorts on 4 characters for 629 moths
  - Used only known data for the trial
- *RQ1*: Users had 72% overall accuracy on 3 of 4 characters
  - Low accuracy for wing pattern, perhaps due to choice of exemplar images
- *RQ2*: About 1/3 of users played more games than required to complete the AMT task
  - Suggests game may motivate some users

Future plans

- Add new photo collections
  - Different classifications to identify image elements that are easy/hard for non-experts
- Broad deployment in Fall 2012
- Migration to projects that need classification of photographs