



Socially intelligent computing to support citizen science

Kevin Crowston, PI Syracuse University School of Information Studies Grant 09-68470

PhD Students: Nathan Prestopnik & Andrea Wiggins REU Student: Susan Furest

Developers: Trupti Rane, Gongying Pu, Shu Zhang; Nathan Brown, Chris Duarte, Yang Liu, Nitin Mule, Sheila Sicilia, Jimit Shah, Jessica Smith, Dania Souid, Peiyuan Sun, Supriya Tardalker, Xueqing Xuan, Zhiruo Zhao

Goals

- Develop an understanding of the conditions under which SoCS can enable and enhance citizen science projects;
- Generate new models of SoCS that support large-scale public participation in scientific research; and
- Develop and test SoCS that reflect human cognitive and social abilities.

Project plan

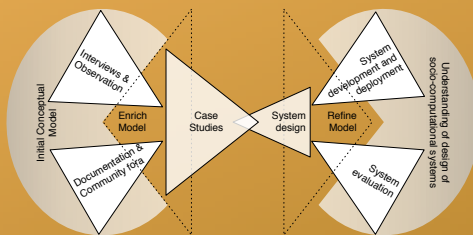
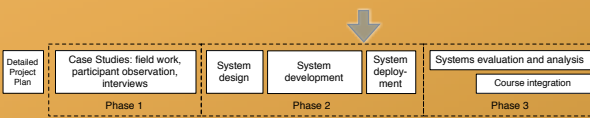
Year 1: Survey and case studies of citizen science websites (completed)

Year 2: Develop systems to support citizen science projects

Year 3: Deploy and evaluate systems

Findings from year 1 case studies

- Projects deploy wide range of functionality
- Have to both satisfy and motivate users
- Surprisingly little use of games



Research questions for system development

- RQ1: Can tasks be designed that non-expert users can perform with good data quality?
- RQ2: Will systems with game features be motivating for users?

System design

- Investigating systems for classification of species from photographs (e.g., moths)
 - Classification done by determining state of various characters of a specimen (e.g., shape is arrow, wing colour is blue)
- Systems range from tool-like to game-like
 - *Hunt-and-Gather*: Tool to develop classification (characters, states and sorted examples)
 - *Happy Match*: Simple sorting game (mostly done; planning mobile version)
 - *Forgotten Island*: Fantasy role-playing game (still under development); classification is way to earn game credit
- Systems share task and database of images and website for registration and management

Current status

- Completed two Amazon Mechanical Turk trials with Happy Match to classify moths



- 227 users played 433 games and made 10K sorts on 4 characters for 629 moths (with known data for the trial)
 - RQ1: AMT users had acceptable accuracy on 3 of 4 characters (67% overall)
 - RQ2: About 1/3 of users played more than required to complete the AMT task
- Currently adding other photo collections and planning Fall deployment