

## Project Summary

This proposal describes work that deeply intertwines computing and social science, using insight about people’s motivation, goals, and behavior to drive the design of models, algorithms, and interfaces that leverage people’s online activity to create value for individuals and society. The online nature of this activity allows it to be aggregated into large data sets for modeling (e.g., social network analysis) and mining (e.g., collaborative filtering). Work in this proposal will expand on these techniques in the context of two socially valuable activities: (1) improving the quality of open content systems such as Wikipedia by motivating people to contribute to them, and (2) supporting people’s self-concepts and relationships with others by using content they create online to support reminiscence.

## Intellectual Merit

Understanding why people act online will lead to *process models* that explain important features of the data people generate through their actions and *new algorithms* for exploiting that data. I will create process models that account for how critical events and role transitions affect people’s contributions over time in Wikipedia. These models will drive algorithms that expose people to other people, groups, tools, policies, and group norms in contexts the models suggest will increase people’s motivation to contribute.

Understanding users’ goals will also lead to *new applications* for data and *more effective interfaces* for presenting it. I will study how and why people reminisce through a series of lightweight prototypes that cue memories and analysis of online behavior in Facebook and blogs. This work will lead to algorithms that capture memory-laden content from activity in social media and interfaces that effectively use that content to support reminiscence. Preliminary interviews suggest that spontaneous, mobile delivery of appropriately chosen reminders promises to increase the value people derive from the content they create.

Finally, the process of designing these models, algorithms, and interfaces will lead to *insights about using social science theory in design* that can be captured and shared with practitioners, *new methodologies for analyzing complex social data* and the production of *useful behavioral datasets* that will benefit other researchers.

## Broader Impacts

The work will have strong social and educational impacts. Increasing participation in public goods like Wikipedia will improve the individual experience of members and the social goods they create. Tools developed in the domain of reminiscing have the potential to improve many people’s lives, especially as the population ages. The PI has a track record and commitment to teaching undergraduate researchers and designers, and the reminiscing work promises to attract female researchers, broadening their participation in computing and information science. The education plan provides for richer research experiences through conference attendance and summer exchange programs with other labs. It also helps students develop the interdisciplinary attitudes and skills needed for this work through courses that look at real systems and the data they provide from both technological and social perspectives.