ISSDM Trust Collaboration

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The WikiTrust project is researching algorithmic notions of trust to improve Internet-scale collaboration. To date, our work at UC Santa Cruz has focused on the Wikipedia for its rich historical data. We have released tools that batch process Wikipedia dumps to color pages according to our notion of "text trust." There is also a real-time tool available for small wikis that want to experiment with our algorithms.

- Title: Content-Driven Reputation Systems
- Brief Summary of Accomplishments
    - Technology transfer from UCSC to LANL
    - Integration with Wikipedia
    - Local download of latest Wikipedia content
    - Preliminary Analysis of USENET discussion groups
- Statistics
    - Associate Professor Luca de Alfaro, UCSC
    - Ian Pye (3rd year Ph.D. student), Bo Adler (5th year Ph.D. student) (UCSC)
    - Universities Engaged: UC Santa Cruz
    - Shelly Spearing, Jorge Roman, Scientific Software Engineering Group
    - LANL Organizations Involved: HPC
    - GeneWiki, Wikimedia Foundation
    - Published: K. Chatterjee, L. de Alfaro, I. Pye. Robust Content-Driven Reputation. In The First ACM Workshop on AISec, 2008. Published; B.T. Adler, K. Chatterjee, L. de Alfaro, M. Faella, I. Pye, V. Raman. Assigning Trust to Wikipedia Content. In WikiSym 2008: International Symposium on Wikis. Published; B.T. Adler, L. de Alfaro, I. Pye, V. Raman. Measuring Author Contributions to the Wikipedia. In WikiSym 2008: International Symposium on Wikis. Published; B.T. Adler, L. de Alfaro. A Content-Driven Reputation System for the Wikipedia. In WWW 2007, Proceedings of the 16th International World Wide Web Conference, ACM Press, 2007. Published.
    - Presentations: AISec 10, 2008, K. Chatterjee, L. de Alfaro, I. Pye. Robust Content-Driven Reputation; Poster Presentation – UCSC Graduate Research day. Ian Pye. Content-Driven Reputation; WikiMania 2009 – Panel Discussion
    - Degrees Enabled: Ian Pye MS
- Other Accomplishments?
    - Bo Adler: Advanced to Candidacy

WikiTrust Adoption

Current Implementations

- A **mediawiki** WikiTrust extension - allows a mediawiki-based wiki to provide trust-colored data to users. It also features a "remote" mode of operation, so that we could provide colored data via an API.
- A **mediawiki** WikiTrust skin - allows Wikipedia users to alter their view of Wikipedia by adding a "trust" tab. The implementation uses the "remote API" to fetch colored data from our UCSC servers.
- A **Firefox** WikiTrust extension https://addons.mozilla.org/en-US/firefox/addon/11087 - similar to the WikiTrust skin, this modifies the view of Wikipedia to add a "trust" tab, and uses the "remote API" to fetch colored data from UCSC servers. The benefit of having a separate Firefox extension is the broader exposure to users (not just those with Wikipedia accounts), and the ability to integrate more experimental data.

Research Plans

- Collaborations
  - GeneWiki
  - Wikipedia 0.7
- New Research Directions
  - Category reputation - one critique of our work has been that human psychology suggests that it would be valuable to have author reputation scores that are computed per subject area, rather than a single score for the whole of Wikipedia.
  - Robust reputation - we have published some work on making our algorithms robust to attack, but we believe that more work can be done on developing a theory describing properties of robust algorithms.
  - Relative reputation - we are exploring the benefits and pitfalls of extending reputation from a single value to a pairwise value, where each user holds a distinct opinion about all other users. In a distributed system, such reputation could be very effective if robust.

Beyond Wikipedia

What are the fundamental principles of reputation systems that are robust to collusion attacks, and that promote useful and "truthful" contributions from users?

Focus on:

- Semantic Crawler
- Discussion Groups (USENET, Google Groups)
- Croudsourced Crisis Information