```html
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML>
<HEAD>
<TITLE>Prantik Bhattacharyya Projects Page</TITLE>
<META NAME="description" CONTENT="Prantik Bhattacharyya Projects Page">
<META NAME="keywords" CONTENT="prantik bhattacharyya">
<META NAME="resource-type" CONTENT="document">
<META NAME="distribution" CONTENT="global">

</HEAD>

<BODY>

<H2>Experiences</H2>

<ul>

<li><b><a name="gsr-cs-ucd">Graduate Student Researcher, Computer Science Department<br>University of
California Davis, Jul. 2008 - Present.</a></b></li>

<ul>
<li><p align="justify"><a name="ucd-sorank">Developed and Implemented a diversity based ranking algorithm
for social search engines</a><br>
Users in online social network platforms now have the unique ability to share information with their
friends in an exclusive manner. The benefit of such sharing also creates scope for others to search for
the same information and enrich their search experience. The search process thus not only enables a user
to gain from the collective knowledge of their respective social network but also access a set of
information that has a distinct social component attached to it. In other words, a search process is no
longer limited to the retrieval of a random piece of information from the www but extends to include a
source of their knowledge i.e. their friend who has individually endorsed that piece of information. In
this work, we consider the process of ranking the retrieved information based on the source as part of
the social search engine problem. Ranking in social search engines is associated with users who form a
closer relationship in the friendship network of the user performing the query. In this direction, I am
working on a 'Diversity-based social search' ranking method that analyzes the relationship network itself
and identifies the social clustering and community topology. The primary advantage of the diversity-based
approach is for users to access a reasonably small set of results that covers thoughts from certain
minority communities.
</p></li>

<!--
<li><p align="justify"><a name="ucd-sogrp">Developed a user distance based method for extraction of user
groups in social networks</a><br> -->

</p></li>

<li><p align="justify"><a name="ucd-sowiki">Development of Wiki Systems with Social Context</a><br>
In this work, we present SocialWiki, a prototype wiki system that leverages the power of social networks
to automatically manage reputation and trust for wiki users based on the content they contribute and the
ratings they receive. The editing privilege is circulated among these users to prevent/reduce vandalisms
and spams, and to encourage user participation by adding social context to the revision process of a wiki
page. By presenting the design and implementation of this proof-of-concept system, we show that social
context can be used to build an efficient, self-adaptive and robust collaborative editing system.
Publication(s): <ol><li>
<a href="">SocialWiki: Bring Order to Wiki Systems with Social Context</a>, Haifeng Zhao, Shaozhi Ye,
Prantik Bhattacharyya, Jeff Rowe, Ken Gribble, and S. Felix Wu, In SocInfo '10: Proceedings of the 2nd
IEEE International Conference on Social Informatics, Laxenburg, Austria.</li></ol>

</p></li>

<li><p align="justify"><a name="ucd-sosearch">
Proposed a heuristic based algorithm for fast and relevant search in decentralized social networks.</a><br>
Social network systems generally model friendship as a binary (1,0) relationship, i.e. friendship between
two users either exists or is absent in the system. However, in reality, most friendships and
relationships have varying levels of intensity. The intensity can range from 'best friends' to
'acquaintances'. In this work [5], we leveraged the intensity to abstractly define the trust between two
```

users. Based on our definition of trust, we developed decentralized search algorithm for social search engines. The trust definition helps to prune the search graphs of online social network graphs which are in general dense in nature and not suitable for application of traditional graph search algorithms. The algorithm is based on a linear combination of the topological distance and trust metric between the user pairs and employs intelligent decision making methods at each iteration of the search process to propagate the search queries across the graph. We observed an improvement in orders of magnitude when computational needs of the search algorithm is compared to other algorithms employed in the decentralized search domain. Publication(s): `<ol><li>` `<a href="http://doi.ieeecomputersociety.org/10.1109/CSE.2009.92">`Information Flow and Search in Unstructured Keyword based Social Networks`</a>`, Ankush Garg, Prantik Bhattacharyya, Charles U. Martel, S. Felix Wu, In `<i>`SMW '09: Proceedings of the Social Mobile Web Workshop,`</i>` `<!-- held in conjunction with the 2009 IEEE International Conference on Social Computing, -->` Vancouver, Canada, August 2009.`</li></ol>`
`</p></li>`

`<li><p align="justify"><a name="ucd-sowiki">`Validated the relationship between user similarity and social network topology.`</a><br>`
A typical user in an online social network is characterized by profile entries like location, hometown, activities, interests, etc. These characteristics help users to identify other users to form friendship and grow their respective social networks. In this work [3, 4], we studied the impact of user similarity on the formation of friendship. For instance, we asked if the similarity between two friends differs from the similarity between any two people or what is the role of homophily i.e. similarity in friendship formation? We employed natural language processing based methods to analyze the user profile entries. Based on the similarity of multiple entries, we analyzed the similarity between user pairs present at various topological distances. We concluded from our evaluation of a set of Facebook users that direct friends are more similar than any other user pair. The more striking observation is that except for direct friends, similarities between users are approximately equal, irrespective of the topological distance between them. More generally, results of this study can be employed to further advance research in query models and link prediction methods for online social networks. Publication(s): `<ol><li>`
`<a href="../~prantik/docs/snam10_keyword.pdf">`Analysis of User Keyword Similarity in Online Social Networks`</a>`, Prantik Bhattacharyya, Ankush Garg, and S. Felix Wu, In Social Networks Analysis and Mining Journal (by Springer), 2010.`</li></ol>`
`</p></li>`

`<li><p align="justify"><a name="ucd-dsl">`Davis Social Links`</a><br>`
I am working in a team to implement Davis Social Links (DSL), a networking architecture to facilitate future social communication systems. The research aims to provide receiver controlled environment with explicit trust and reputation control, and security and privacy considerations for online social networks. We developed the application over Facebook for testing purposes. We extend this work to present an architecture that couples two different communication layers together: the end-to-end communication layer and the social context layer. The proposed architecture attempts to preserve the original application semantics (i.e., we can use Thunderbird or Outlook, unmodified, to read our SMTP emails) and provides the communicating parties (email sender and receivers) a social context for control and management. Publication(s): `<ol><li>` `<a href="http://doi.ieeecomputersociety.org/10.1109/SAINT.2009.33">`Davis Social Links: Leveraging Social Networks for Future Internet Communication`</a>`, Lerone Banks, Prantik Bhattacharyya, Matthew Spear, S. Felix Wu, In `<i>`FIST '09: Proceedings of the First International Workshop on Trust and Security in the Future Internet,`</i>` Seattle, USA, July 2009.`</li>`

`<li><a href="http://www.springerlink.com/index/1ug1q26k7h236w1l.pdf">`
Design and Implementation of Davis Social Links OSN Kernel.`</a>`, Thomas Tran, Kelcey Chan, Shaozhi Ye, Prantik Bhattacharyya, Ankush Garg, Xiaoming Lu, S. Felix Wu, In `<i>`SNAS '09: Proceedings of the Workshop on Social Networks, Applications, and Systems,`</i>`
`<!-- held in conjunction with the 2009 International Conference on Wireless Algorithms, Systems and Applications, -->` Boston, USA, August 2009.`</li></ol>`

`</p></li>`

`<li><p align="justify"><a name="ucd-snmodel">`Proposed a social network model based on shared interests of users`</a></br>`
We developed a social network model that uses the similarity between individual profiles to evolve. Keywords (Attributes) representing user(s) is taken as input parameter and quantified to determine the semantic similarity between any two user. The social network model grows probabilistically according to the similarity values thus obtained.
Publication(s): `<ol><li>`
`<a href="http://doi.ieeecomputersociety.org/10.1109/ASONAM.2009.46">`
Social Network Model based on Keyword Categorization`</a>`, Prantik Bhattacharyya, Ankush Garg, S. Felix Wu, In `<i>`ASONAM '09: Proceedings of the International Conference on Advances in Social Networks Analysis and Mining,`</i>` Athens, Greece, July 2009.`</li></ol>`

```html
</p></li>

</ul>

<HR><br>

<li><b><a name="gsr-agecon-ucd">Graduate Student Researcher, Agricultural & Resource Economics
Department<br>University of California Davis, Jun. 2011 - Present.</a></b></li>

<ul>
<li><p align="justify"><a name="ucd-patent">Data Mining and Probabilistic Matching Methods for Linking
Patents to Trade </a><br>
[Details will go here.]
</ul>
</p></li>

<HR><br>

<li><a name="vs-ibm"><b>Visiting Student, IBM T.J. Watson Labs, New York, Jul. 2010 - Aug. 2010.</b></a></
li>
<ul>
<li><a name="ibm-snis">Using social networks to improve intranet search</a>
</li>
</ul>

<HR><br>

<li><a name="pm-hp"><b>Project Member, Hewlett Packard Labs, India, Feb. 2006 - Aug. 2006.</b></a><br>

<ul>
<li><p align="justify"><a name="hp-gkb">Gesture Keyboard</a><br>
I worked on this project at Hewlett Packard Labs, Bangalore in India during my undergraduate days. The
webpage at HP (<a href="http://www.hpl.hp.com/india/research/mobile-projects.html">here</a>) has detail
information about the project. I worked on development of GKB for Bengali language.
My work included designing the keyboard layout, gather handwriting data from a large and diverse user
base and use this data to build the software. As member of the team for Bengali language, I feel
privileged to work for the welfare of users spread over India and Bangladesh.
</p></li>
</ul>

<HR><br>

<li><a name="sr-ju"><b>Student Researcher, Jadavpur University, India, Jul. 2006 - Jun. 2007.</b></a><br>
In this work, we implemented Java based Graphical Tool for performance analysis of network protocols
under simulation environments. We used Java in Simulation Time <a href="http://jist.ece.cornell.edu/">
(JiST)</a> for our work.</li>
<HR>

</ul>


</ul>


</BODY>
</HTML>
```