



School of Computer Science and Engineering

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Managing Your Social Networking Profile

Enabling User-Tailored Views of Your Feed

by

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Chapter 1

Introduction

Social Networking Services (SNS) are platforms where a diverse range of users are able share their interests, organise social activities and keep in touch with people. In almost all SNS, users are presented with a feed; this feed is a list of items generated via the user's connections that the user may be more or less interested in. The feed acts as a summary of activities that the user has subscribed to, a dashboard presented to them when they first log in. This feed contains a large amount of items that we would like to order, or rank in some way such that the items that the user finds more interesting have a higher precedence in the feed. As the use of SNS grows rapidly, so does the demand for such ranking algorithms.

While there exists many SNS currently being used, the scope of this thesis will be reduced to focus on only one of them; Facebook. This is mainly due to the time constraints involved, however the results and methodology used in both our research and implementation will be generalisable to all SNS. There are two main reasons why Facebook has been chosen as our SNS of focus. Firstly, Facebook is currently the most used SNS which allows us to more easily gather users for our purposes aswell as have more confidence that our results can be generalised to most SNS. Secondly, Facebook attracts many different types of users due to it's very flexible, generic nature (i.e. not a niche SNS). Each type of user will have different wants and needs and by having a

large set of user types, we are able to more easily identify them.

With all this considered, it is clearly not possible to have one single ranking algorithm to accomodate for all users, and yet as of now, Facebook only offers one ranking, or view of a user's feed (besides chronological order). Our aim can be summarised as follows: Firstly we will set out to identify these different user types and their needs, then we aim to create a number of different ranking algorithms based on the discovered user types. Thus offering a more personalised ranking of a user's feed. It is important to note that we do not aim to create a *better* ranking algorithm than Facebook as an enormous amount of research and time has already been put into creating said algorithm, instead we aim to offer different, more personalised rankings.

Chapter 2

Background

2.1 User Modelling

- Discuss user modelling here
- Refer to papers and quote ...

Why do people use Facebook? I would like to cite Bob [NH12] who has died for no reason.

Four approaches to user modellinga qualitative research interview study of HCI professionals' practice I would like to cite Bob [Cle04] who has died for no reason.

MySpace and Facebook: Identifying dimensions of uses and gratifications for friend networking sites I would like to cite Bob [BRR10] who has died for no reason.

Semantic modelling of user interests based on cross-folksonomy analysis I would like to cite Bob [SAC⁺08] who has died for no reason.

2.2 Ranking Algorithms

- Discuss ranking algorithms here (may need sub categories)

- Refer to papers and quote ...

Personalized feed recommendation service for social networks I was bored so I looked at Li [LTL⁺10] to find some pigs.

Leveraging Noisy Lists for Social Feed Ranking. I was bored so I looked at Mat [BMAC13] to find some pigs.

Activity ranking in LinkedIn feed I was bored so I looked at Aga [ACG⁺14] to find some pigs.

2.3 Sample

This is a sample!! Citing can also be learned here!

Previously, Nooshabadi [Noo05] has descried style-related thesis requirements, Shepherd [She05] has provided L^AT_EX templates while other academics have discussed contents with their students. This work draws all the relevant information regarding thesis writing into one document. The present template/document is heavily influenced by Nooshabadi and Shepherd, incorporating requirements from The Graduate Research School [GRS14] for Higher Degree Research theses.

Chapter 3

Proposal

3.1 Our Solution

- Discuss the proposal
- Outline differences and what we do compared to previous works
- explain what we want to do ...

Our thesis aims to provide a more personalized view of Facebook's feed that is more adaptable to users. We do this through the introduction of user types in order to figure out what users actually want in their feed. We utilize the same tried and true algorithms used in ranking the feed but we incorporate user types and the weights that are produced from this type in order to make the feed more relevant to the user. This means that users will be provided with posts that they are more interested in at the top of their feed.

Chapter 4

Plan

4.1 Our System

Figure 4.1 provides a general overview of our implementation plan. It is a block diagram of our system.

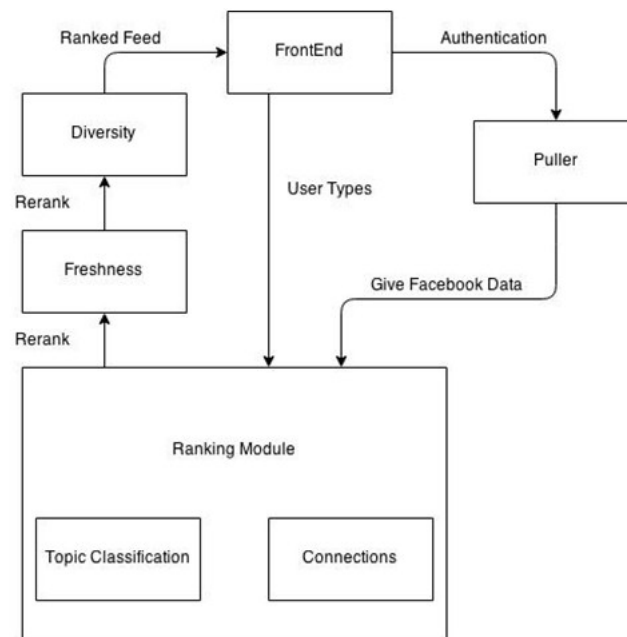


Figure 4.1: Block diagram

4.2 Evaluation

We considered two different ways of evaluating our system.

The first method was to simulate real users by creating Facebook accounts and attempting to mimic behaviour of each user type. We would then create a ground truth regarding how that type of user would like their feed ranked and compare the output of our ranking algorithm to the ground truth. We found quite a few flaws in this method, the major one being how difficult it would be to simulate a real user. Creating social interactions and simulating connections between users would prove very difficult. On top of this, the ground truths that we would be creating could be affected by confirmation bias. This left us with a very questionable evaluation method, so we arrived at our second one.

The second, and chosen evaluation method takes the form of gathering real users and performing a form of usability test. In this test, we will ask participants to order their feeds how they would like it to be seen, this forms an unbiased ground truth. We then run our ranking algorithm on their feeds and compare the ground truth they gave us earlier to the output. In addition to this ground truth comparison, we will ask the user to compare our ranking algorithm with the one provided by Facebook, without telling them which is which. This will give us some subjective results as to whether our ranking algorithm has succeeded in personalising the user's feed.

Bibliography

- [ACG⁺14] Deepak Agarwal, Bee-Chung Chen, Rupesh Gupta, Joshua Hartman, Qi He, Anand Iyer, Sumanth Kolar, Yiming Ma, Pannagadatta Shiv-aswamy, Ajit Singh, et al. Activity ranking in linkedin feed. In *Proceedings of the 20th ACM SIGKDD international conference on Knowledge discovery and data mining*, pages 1603–1612. ACM, 2014.
- [BMAC13] Matthew Burgess, Alessandra Mazzia, Eytan Adar, and Michael J Ca-farella. Leveraging noisy lists for social feed ranking. In *ICWSM*, 2013.
- [BRR10] Jennifer Bonds-Raacke and John Raacke. Myspace and facebook: Identifying dimensions of uses and gratifications for friend networking sites. *Individual Differences Research*, 8(1):27–33, 2010.
- [Cle04] Torkil Clemmensen. Four approaches to user modellinga qualitative re-search interview study of hci professionals’ practice. *Interacting with com-puters*, 16(4):799–829, 2004.
- [GRS14] GRS. Thesis format guide: A guide for candidates preparing to sub-mit their thesis for examination. <https://research.unsw.edu.au/document/thesis.format.guide.pdf>, accessed 14/04/2015, 2014. Graduate Research School, UNSW.
- [LTL⁺10] Huajing Li, Yuan Tian, Wang-Chien Lee, C Lee Giles, and Meng-Chang Chen. Personalized feed recommendation service for social networks. In *Social Computing (SocialCom), 2010 IEEE Second International Conference on*, pages 96–103. IEEE, 2010.
- [NH12] Ashwini Nadkarni and Stefan G Hofmann. Why do people use facebook? *Personality and individual differences*, 52(3):243–249, 2012.
- [Noo05] Saeid Nooshabadi. Bachelor of engineering thesis and project: timetable and notes for students. <http://scoff.ee.unsw.edu.au/document/thesis/thnotes2.pdf>, accessed 14/11/2005, 2005. School of El. Eng. and Telecom., UNSW.
- [SAC⁺08] Martin Szomszor, Harith Alani, Ivan Cantador, Kieron OHara, and Nigel Shadbolt. *Semantic modelling of user interests based on cross-folksonomy analysis*. Springer, 2008.

- [She05] John Shepherd. Doing a cse thesis. <http://www.cse.unsw.edu.au/~jas/talks/thesis/>, accessed 14/11/2005, 2005. School of Comp. Sci. and Eng., UNSW.