

Resonation Elicits Diffusion: Modelling Subjectivity for Retweeting Analysis

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Abstract

Retweeting is the core mechanism of information diffusion on Twitter, and many factors have been proved to influence retweeting behavior, however few studies have investigated the subjective motivation of a user to retweet a message. Subjective nature of human is the underlying reason of diverse social behaviors including information diffusion, and subjective resonance triggered by topics and opinions similarity between tweets and users will elicit retweeting. In this paper, in the light of psychological theory, we assume that a tweet is more likely to be retweeted by a user because of similar subjectivity, and propose a subjective model to combine both the topics and opinions to model subjectivity. With state-of-the-art topic model and sentiment analysis techniques, we establish subjective model by finding topics and determining opinions towards these topics from user-generated content simultaneously. We evaluate our model in the retweeting analysis problem to verify its impact on retweeting and effectiveness in the retweeting prediction performance. Specifically, we demonstrate that subjective similarity is the most distinguishable feature with largest difference between retweeted and unretweeted users; subjective model outperforms other models in retweeting prediction; and features derived from subjective model give the most significant improvement over a off-the-shelf predicting model in a retweeting classification framework.

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Your files should work without any supporting files (other than the program itself) on any computer with a standard \LaTeX distribution. Place your PDF and source files in a single tar, zipped, gzipped, stuffed, or compressed archive. Name your source file with your last (family) name.

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In the \LaTeX source for your paper, you **must** place the following lines as shown in the example in this subsection. This command set-up is for three authors. Add or subtract author and address lines as necessary, and uncomment the portions that apply to you. In most instances, this is all you need to do to format your paper in the Times font. The helvet package will cause Helvetica to be used for sans serif, and the courier package will cause Courier to be used for the typewriter font. These files are part of the PSNFSS2e package, which is freely available from many Internet sites (and is often part of a standard installation).

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```
\documentclass[letterpaper]article
% Required Packages
```

```

\usepackage{aaai}
\usepackage{times}
\usepackage{helvet}
\usepackage{courier}
\setlength{\pdfpagewidth}{8.5in}
\setlength{\pdfpageheight}{11in}
%%%%
% PDFINFO for PDF $\LaTeX$ 
% Uncomment and complete the following for metadata
(your paper must compile with PDF $\LaTeX$ )
\pdfinfo{
/Title (Input Your Paper Title Here)
/Author (John Doe, Jane Doe)
/Keywords (Input your paper's keywords in this optional
area)
}
%%%%
% Section Numbers
% Uncomment if you want to use section numbers
% and change the 0 to a 1 or 2
% \setcounter{secnumdepth}{0}
%%%%
% Title, Author, and Address Information
\title{Title}
\author{Author 1 \and Author 2\\
Address line\\
Address line\\
\And
Author 3\\
Address line\\
Address line}
%%%%
% Body of Paper Begins
\begin{document}
\maketitle
...
%%%%
% References and End of Paper
\bibliography{Bibliography-File}
\bibliographystyle{aaai}
\end{document}

```

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```

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\maketitle
...
\bibliography{Bibliography-File}
\bibliographystyle{aaai}
\end{document}

```

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```
\author{Author 1 \and ... \and Author n}\  
Address line \\\ ... \\\ Address line}
```

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```
\author{Author 1}\\  
{\bf Author 2}\\\ ... \\\ {\bf Author n}\\  
Address line \\\ ... \\\ Address line}
```

For authors from different institutions, use `\And`:

```
\author{Author 1\\ Address line \\\ ... \\\ Address line  
\And ... \And Author n\\  
Address line\\ ... \\\ Address line}
```

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```
\author{Author 1\\ Address line \\\ ... \\\ Address line\\  
\AND  
Author 2 \\ Address line \\\ ... \\\ Address line\\  
\And  
Author 3 \\ Address line \\\ ... \\\ Address line\\  
}
```

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Long quotations and extracts should be indented ten points from the left and right margins.

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Figures, drawings, tables, and photographs should be placed throughout the paper near the place where they are first discussed. Do not group them together at the end of the paper. If placed at the top or bottom of the paper, illustrations may run across both columns. Figures must not invade the top, bottom, or side margin areas. Figures must be inserted using the `\usepackage{graphicx}`. Number figures sequentially, for example, figure 1, and so on.

The illustration number and caption should appear under the illustration. Labels, and other text in illustrations must be at least nine-point type.

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Fonts in Your Illustrations You must embed all fonts in your graphics before including them in your \LaTeX document.

References

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```
\bibliographystyle{aaai} \bibliography{bibfile1,bibfile2,...}
```

The list of files in the `\bibliography` command should be the names of your BibTeX source files (that is, the .bib files referenced in your paper).

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`\cite`: Cites the given reference(s) with a full citation. This appears as “(Author Year)” for one reference, or “(Author Year; Author Year)” for multiple references.

`\shortcite`: Cites the given reference(s) with just the year. This appears as “(Year)” for one reference, or “(Year; Year)” for multiple references.

`\citeauthor`: Cites the given reference(s) with just the author name(s) and no parentheses.

`\citeyear`: Cites the given reference(s) with just the date(s) and no parentheses.

Warning: The `aaai.sty` file is incompatible with the `hyperref` and `natbib` packages. If you use either, your references will be garbled.

Formatted bibliographies should look like the following examples.

Book with Multiple Authors

Engelmore, R., and Morgan, A. eds. 1986. *Blackboard Systems*. Reading, Mass.: Addison-Wesley.

Journal Article

Robinson, A. L. 1980a. New Ways to Make Microcircuits Smaller. *Science* 208: 1019–1026.

Magazine Article

Hasling, D. W.; Clancey, W. J.; and Rennels, G. R. 1983. Strategic Explanations in Consultation. *The International Journal of Man-Machine Studies* 20(1): 3–19.

Proceedings Paper Published by a Society

Clancey, W. J. 1983b. Communication, Simulation, and Intelligent Agents: Implications of Personal Intelligent Machines for Medical Education. In *Proceedings of the Eighth International Joint Conference on Artificial Intelligence*, 556–560. Menlo Park, Calif.: International Joint Conferences on Artificial Intelligence, Inc.

Proceedings Paper Published by a Press or Publisher

Clancey, W. J. 1984. Classification Problem Solving. In *Proceedings of the Fourth National Conference on Artificial Intelligence*, 49–54. Menlo Park, Calif.: AAAI Press.

University Technical Report

Rice, J. 1986. Polygon: A System for Parallel Problem Solving, Technical Report, KSL-86-19, Dept. of Computer Science, Stanford Univ.

Dissertation or Thesis

Clancey, W. J. 1979b. Transfer of Rule-Based Expertise through a Tutorial Dialogue. Ph.D. diss., Dept. of Computer Science, Stanford Univ., Stanford, Calif.

Forthcoming Publication

Clancey, W. J. 1986a. The Engineering of Qualitative Models. *Forthcoming*.

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Generally speaking, PDF files are platform independent and accessible to everyone. When creating a paper for a proceedings or publication in which many PDF documents must be merged and then printed on high-resolution PostScript RIPs, several requirements must be met that are not normally of concern. Thus to ensure that your paper will look like it does when printed on your own machine, you must take several precautions:

- Use type 1 fonts (not type 3 fonts)
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- Embed all fonts when producing the PDF
- Do not use the [T1]fontenc package (install the CM super fonts package instead)

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PDFL^AT_EX's default is to create documents with type 1 fonts. If you find that it is not doing so in your case, it is likely that one or more fonts are missing from your system or are not in a path that is known to PDFL^AT_EX.

dvipdf Script Scripts such as `dvipdf` which ostensibly bypass the Postscript intermediary should not be used since they generally do not instruct dvips to use the `config.pdf` file.

dvipdfm Do not use this dvi-PDF conversion package if your document contains graphics (and we recommend you avoid it even if your document does not contain graphics).

Ghostscript

L^AT_EX users should not use GhostScript to create their PDFs.

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If you are still finding type 3 fonts in your PDF file, look at your graphics! L^AT_EX users should check all their imported graphics files as well for font problems.

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or figures run into the margins? Did you include all your figures? Did you follow mixed case capitalization rules for your title? Did you include a copyright notice? Do any of the pages scroll slowly (because the graphics draw slowly on the page)? Are URLs underlined and in color? You will need to fix these common errors before submitting your file.

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In the past, AAAI has corrected improperly formatted files submitted by the authors. Unfortunately, this has become an increasingly burdensome expense that we can no longer absorb. Consequently, if your file is improperly formatted, it may not be possible to include your paper in the publication. If time allows, however, you will be notified via e-mail (with a copy to the program chair) of the problems with your file and given the option of correcting the file yourself (and paying a late fee) or asking that AAAI have the file corrected for you, for an additional fee. If you opt to correct the file yourself, please note that we cannot provide you with any additional advice beyond that given in your packet. Files that are not corrected after a second attempt will be withdrawn.

L^AT_EX 209 Warning

If you use L^AT_EX 209 we will not be able to publish your paper. Convert your paper to L^AT_EX 2e.

Naming Your Electronic File

We request that you name your L^AT_EX source file with your last name (family name) so that it can easily be differentiated from other submissions. If you name your files with the name of the event or “aaai” or “paper” or “camera-ready” or some other generic or indecipherable name, you bear all risks of loss — it is extremely likely that your file may be overwritten.

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If you have any questions about the preparation or submission of your paper as instructed in this document, please contact AAAI Press at the address given below. If you have technical questions about implementation of the aaai style file, please contact an expert at your site. We do not provide technical support for L^AT_EX or any other software package. To avoid problems, please keep your paper simple, and do not incorporate complicated macros and style files.

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Additional Resources

L^AT_EX is a difficult program to master. If you’ve used that software, and this document didn’t help or some items were not explained clearly, we recommend you read Michael Shell’s excellent document (testflow doc.txt V1.0a 2002/08/13) about obtaining correct PS/PDF output on L^AT_EX systems. (It was written for another purpose, but it has general application as well). It is available at www.ctan.org in the tex-archive.

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Thank you for reading these instructions carefully. We look forward to receiving your electronic files!