


# Chapter 38

## Tools of Opinion Mining

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### ABSTRACT

*Today's generation express their views and opinions publicly. For any organization or for individuals, this feedback is very crucial to improve their products and services. This huge volume of reviews can be analyzed by opinion mining (also known as semantic analysis). It is an emerging field for researchers that aims to distinguish the emotions expressed within the reviews, classifying them into positive or negative opinions, and summarizing it into a form that is easily understood by users. The idea of opinion mining and sentiment analysis tool is to process a set of search results for a given item based on the quality and features. Research has been conducted to mine opinions in form of document, sentence, and feature level sentiment analysis. This chapter examines how opinion mining is moving to the sentimental reviews of Twitter data, comments used in Facebook on pictures, videos, or Facebook statuses. Thus, this chapter discusses an overview of opinion mining in detail with the techniques and tools.*

### INTRODUCTION

Social networks have become part of our digital life and have changed the way we communicate significantly. There are 255 million of websites on the internet and therefore a lot of facts and opinions are available for companies and customers. Everybody is able to publish subjective information about products, brands and companies. The exchange of information and opinions of consumers on the Web 2.0 also means that a greater confidence in the products, brands and services are created, which e.g. in the e-commerce -sector leads to a higher purchase probability. Therefore it is very important that companies are able to find, extract and analyze this user generated content, because these contents contain significant “real” market relevant data. Furthermore it is an easy and cheap way to gain a current market

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overview to generate new strategic, tactical and operational plans and policies as well as creating relevant brand messages.

Opinion Mining deals with scientific methods in order to find, extract, and systematically analyze product, company or brand related views on the internet. The identification of sentiment orientation (positive, neutral and negative) of consumers' Opinions is an essential part of the opinion mining process.

## **PROCESS MODEL OF OPINION MINING**

The following process model describes steps, methods and tools to find, extract and analyze web data with regard to their sentiment orientation:

1. Selection of relevant data source
2. Selection of relevant method and tool to analyze the data
3. Pre-processing and pre-structuring of the contents on basis of the chosen methods
4. Transformation of the text in standard and further processed structure
5. Analyzing the content in relation to its semantic orientation
6. Evaluation of the methods and tools

Table 1 outlines commonly used methods and tools for each process step.

*Table 1. Methods and tools for various steps of opinion mining*

<b>Step</b>	<b>Method (examples)</b>	<b>Tools (examples)</b>
Selection of relevant data	1. Information retrieval on Web 2. Relevance Index	1. WebCrawler 2. RSS feeds, 3. APIs for gathering data
Preprocessing	Thesaurus, Ontologies, Tokenizer, Stemmer, Screen scrapper	1. RDF-OWL, 2. Alchemy API 3. GATE 4. UIMA 5. GETESS 6. Openthesaurus.de
Transformation	Part of speech tagger, Sentence splitter, Orthographic co-references	1. Tree Tagger 2. Sentence splitter, 3. Orthographic co-references
Analysis	Classification methods based on document or sentence level	1. Opinion Observer 2. Rapid Miner
Evaluation	Manual classification of sentiment orientation and feedback	

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