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# Sentiment Classification and Opinion Mining Using News Wires and Micro Blogs (Twitter)

17 July, 2015

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Fitch Learning, London

## *Topics covered:*

- **Aspect-based Sentiment Analysis**
- **Multi-Dimensional Sentiment Analysis**
- **Extracting User-Level Sentiments with Approval Relations**



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## 9:00 REGISTRATION AND COFFEE

### 9:30 Natural Language Processing challenges in analysing Social Media messages

*Stephen Pulman, Professor of Computational Linguistics, Oxford University/TheySay Analytics*

While by no means a solved problem, we are getting reasonably good at the syntactic and semantic analysis of well-behaved text of the type found in news feeds or in other traditional media. But the informal and rapidly evolving language styles found on social media like Twitter or Facebook cause problems for our usual analysis techniques, and accuracy levels typically are much lower for such texts. In this talk I will describe some of these challenging linguistic phenomena and outline some attempts to overcome the difficulties posed for automated linguistic analysis.

## 10:30 COFFEE

### 11:00 Text and Network Analysis for Sentiment Mining

*Enza Messina, Professor Department of Informatics Systems & Communication (DISCo) - University of Milano-Bicocca, Italy & Federico Alberto Pozzi, Analytical Consultant SAS*

In this talk we show how social relationships can be managed to improve user-level sentiment analysis of microblogs, overcoming the limitation of the state-of-the-art methods that generally consider posts as independent data. Early approaches consist in exploiting friendship relations, but since two friends could have different opinions about the same topic, it could however be inappropriate to measure sentiment similarity. We show how combining post contents and approval relations may lead to significant improvements in the polarity classification of the sentiment both at post and at user level

## 11:40 Comfort Break

### 11:45 Ensemble Learning for Sentiment Analysis

*Enza Messina, Professor, Department of Informatics Systems & Communication (DISCo) - University of Milano-Bicocca, Italy*

Polarity classification is one the most relevant tasks for analysing the sentiment of the huge amount of textual data on the Web. Most existing

approaches select the best classification model but these do not take into account the inherent complexity of natural language, particularly when dealing with user generated contents. This talk presents a paradigm of ensemble learning which reduces the noise sensitivity related to language ambiguity and therefore provides a more accurate prediction of the polarity.

### 12:30 Identifying Types of Sentiment Spikes that Have Significant Predictive Power

*Tomaso Aste, Head of the Financial Computing & Analytics Group and Director of MSc in Financial Risk Management & Olga Kolchyna, PhD Researcher, University College London*

We study the power of Twitter sentiment to predict consumer sales, by analysing sales for 50 companies and over a 100 million tweets mentioning those companies along with their sentiment. We developed a robust method for identifying and clustering bursts in sales and Twitter Sentiment series based on their shape. We find that bursts from Twitter Sentiment time series can be clearly separated into four categories. For each category we calculate the number of sales events that are preceded by Twitter volume bursts. We find that prediction of sales based on unclustered Twitter spikes is not better than random guessing, however, clustering of Twitter Sentiment bursts revealed two classes of spikes that have significant ( $p$ -value  $< 0.01$ ) predictive power.

## 13:15 LUNCH

### 14:15 SAS® Text Analytics and Sentiment Analysis

*Federico Alberto Pozzi and Marco Zavarini (SAS Institute)*

In this talk, we will present the SAS® solutions for Text Analytics and Sentiment Analysis. In particular, a demo using SAS® Visual Analytics will be presented. In this demo, we will present two case studies based on real data regarding a famous customer in the banking sector. The first case study regards the customer care, where data are retrieved from the customer's official facebook page, while the second case study regards the brand analysis on textual information coming from different online sources. In particular, we will see how to detect the hot topics, analyse the overall sentiment and the sentiment taxonomy. At the end, the SAS® infrastructure for high-performance analytics will be discussed.

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15:00 TEA

Three overview presentations (details TBC):

Text to sentiment classification process: the approaches taken and features offered to clients

15:20 Presentation 1: RavenPack

15:50 Presentation 2: Bloomberg

16:20 Presentation 3: Thomson Reuters

16:50 Panel with Discussion and Q & A  
Led by **Tomaso Aste**, University College London

17:15 CLOSE

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## Speaker Profiles to date



**Tomaso Aste** is Head of the Financial Computing & Analytics Group and Director of the MSc in Financial Risk Management at UCL. He is vice Director of the UK Financial Computing & Analytics Doctoral Centre and a member of the board of the LSE Systemic Risk Centre. He graduated in Physics at the University of Genoa and he has a PhD from the Politecnico di Milano (second year at Imperial College, London). He is recognized as a world-leading scientist in complex system studies and financial big-data analytics. He consults for several financial, biotechnological and big-data analytics companies.



**Olga Kolchyna** is a PhD Researcher in the Centre of Financial Computing and Business Analytics at the University College London, UK. Olga's research interests include natural language processing, machine learning and agent based modelling. Olga provides research support to Certona - a market leader in delivering personalised customer experiences for omnichannel retailers. Data analytical solutions that Olga develops, allow Certona to understand social moods about their clients and take informed decisions based on it. The work covers sentiment analysis, building demand forecasting models based on sales and sentiment data, big events detection.



**Enza Messina** is a Professor in Operations Research at the Department of Informatics Systems and Communications, University of Milano-Bicocca, where she leads the research Laboratory MIND (Models in decision making and data analysis). She holds a PhD in Computational Mathematics and Operations Research from the University of Milano. Her research activity is mainly focused on decision models under uncertainty and more recently on statistical relational models for data analysis and knowledge extraction. In particular, she developed relational classification and clustering models that finds applications in different domains such as systems biology, e-justice, text mining and social network analysis. She is a co-founder of Sharper Analytics a spin-off of the University of Milano Bicocca.



**Federico Alberto Pozzi**, Analytical Consultant, SAS Italy, received his Ph.D. in Computer Science from the Department of Informatics Systems and Communications, University of Milano-Bicocca (Italy), where he worked at the research Laboratory MIND (Models in decision making and data analysis) under the supervision of Prof. Enza Messina. He received his Master's Degree in Computer Science in 2011 with a thesis entitled "Development and application of a statistical analysis tool to detect news impact on market risk", held at the Department of Financial Mathematics of the research institute Fraunhofer ITWM (Kaiserslautern, Germany). His research interests focus primarily on Probabilistic Relational Models, Natural Language Processing and Social Network Analysis, in particular applied to Sentiment Analysis on Social Media.



**Stephen Pulman** is Professor of Computational Linguistics at the Department of Computer Science, Oxford University. He is a Professorial Fellow of Somerville College, Oxford, and a Fellow of the British Academy. He has also held visiting professorships at the Institut für Maschinelle Sprachverarbeitung, University of Stuttgart; and at Copenhagen Business School. He is a co-founder of TheySay Ltd. Previous positions include Professor of General Linguistics at Oxford University, Assistant Professor (Reader) at the University of Cambridge Computer Laboratory, and Director of SRI International's Cambridge Computer Science Research Center.

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## Related Events

### CONFERENCE

#### BEHAVIOURAL MODELS AND SENTIMENT ANALYSIS APPLIED TO FINANCE

15 - 16 July, 2015

Sentiment Analysis has developed as a technology that applies machine learning and makes a rapid assessment of the sentiments expressed in news releases. News (events) move the market and are measured quantitatively. Analysts and investors digest financial news and their perceptions impact the market and move stock prices. This conference presents the current state of the art in this fast-emerging field. The conference also presents the current state of knowledge in the application of Sentiment Analysis to the respective models of trading, fund management and risk control. Major news (meta) data suppliers such as Bloomberg, Thomson Reuters, Dow Jones, RavenPack and MarketPsych have committed their participation and sponsorship. Case studies by investment banks, proprietary trading houses and financial analytics providers are under discussion; further such contributions are solicited. Leading academics, thought leaders and researchers from Europe, UK and USA have agreed to contribute and participate in the conference and the workshops.

### PRE-CONFERENCE WORKSHOP (I)

#### BEHAVIOURAL FINANCE: FOUNDATIONS AND RECENT DEVELOPMENTS

13 JULY, 2015

#### TOPICS COVERED:

- Juxtaposition of Behavioural Finance and Neo-Classical Decision Theory
- Hard and Soft Side of Investment Behaviour
- Improving Investment Decisions with Behavioural Finance
- Efficient Market Hypothesis; Market Anomalies; Utility Theory & Prospect Theory

#### PRESENTERS:

**Gulnur Muradoglu**, Queen Mary University of London  
**Klaus Reiner Schenk-Hoppé**, University of Manchester  
**Enrico DeGiorgi**, Univ. of St Gallen, Switzerland  
**Raphael Markellos**, Norwich Business School  
**Richard Peterson**, MarketPsych  
**Victor Ricciardi**, Goucher College

### PRE-CONFERENCE WORKSHOP (II)

#### MARKET MICROSTRUCTURE, LIQUIDITY AND AUTOMATED TRADING

14 JULY, 2015

#### TOPICS COVERED:

- Introduction to Market Microstructure and Liquidity Measures
- Optimal Trade Execution Strategies
- Automated Trading Strategies
- Discussion of Trading Platforms and Their Features
- Pre- and Post-Trade Analytics

#### PRESENTERS:

**Ashok Banerjee**, Dean of New Initiatives and External Relations, Indian Institute of Management (IIM) Calcutta.

**Rajib Ranjan Borah**, co-Founder and Director of iRageCapital Advisory Pvt Ltd, and QuantInsti Quantitative Learning Private Limited

**Dan diBartolomeo (TBC)**, President and Founder, Northfield Information Services, Inc.

**Terri Duhon**, Founder & Senior Advisor, B&B Structured Finance Limited

**Ilya Gorelik**, CEO & Founder, Deltix

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## 1st Delegate

Dr/Mr/Ms/Mrs.....First Name.....  
Surname.....  
Position.....  
Email.....  
Phone/Mobile.....  
Head of Department .....

## 2nd Delegate

Dr/Mr/Ms/Mrs.....First Name.....  
Surname.....  
Position.....  
Email.....  
Phone/Mobile.....  
Head of Department .....

## Contact Details

Organisation.....  
Address.....  
Post Code.....  
Tel.....  
Fax.....

### INVOICE TOTAL

I enclose a cheque made payable to UNICOM  
Seminars  
Please charge my: Visa/MasterCard/Amex/Switch

Card No.

Expiry Date: /

Purchase Order

Please invoice (include invoice address)

F.A.O.....

Organisation.....

Address.....

Post code.....

Tel.....Mobile.....

Signature.....

Date.....

## **Fees:**

Early Bird rate until 8 May 2015: £195 + VAT  
Standard price after 8 May 2015: £275 + VAT

## **WHAT THE REGISTRATON FEE INCLUDES:**

The registration fee for the training course or the event covers the following: attendance, copy of the documentation and materials, examinations where applicable and light refreshments. Accommodation is not included unless otherwise specified. Joining instructions will be sent to you approximately one week before the event (if for any reason these are not received, please contact UNICOM).

## **PAYMENT TERMS:**

Payment is required in advance of the event or at the latest, paid at the event. All invoices carry a 10% surcharge, which is payable if the fee remains unpaid on the day of the event and 30 days thereafter; should the invoice remain unpaid beyond 30 days and up to 45 days the surcharge increases to 15% and if unpaid after 45 days the surcharge increases to 20%. For credit card payments a 2.5% fee amount is charged or for American Express cards the fee is 3% of the total amount.

## **CANCELLATION AND SUBSTITUTION TERMS:**

What happens if I have to cancel? If you confirm your **CANCELLATION** in writing up to fifteen (15) working days before the event or training start date and if the invoice has already been paid you will receive a refund less a 10% + VAT service charge; if the invoice has not been paid at that point a credit note for the existing invoice will be raised and a new invoice raised for the 10% +VAT service charge – the service charge invoice is due for payment by the original event / training start date. Regrettably, no refunds can be made for cancellations received less than 15 working days prior to the event and the invoice will remain due. **SUBSTITUTIONS** are welcome at any time – there is no fee for sending a substitute delegate on any event or training. If it is more than 15 working days but less than 5 working days before the course or training start date, you may **TRANSFER** your registration to a future date within a 6 month period. If it is less than 15 working days to the event /training start date you can still **TRANSFER** your booking to a future event date within 6 months but an additional transfer fee of £125+VAT per person per event day will be charged (e.g. the transfer fee for a 2 day training is £250+VAT), invoices for transfer fees are due for payment within 7 days of the invoice date.

As we cannot guarantee that exactly the same event or training will be available, the transfer will be open to any other UNICOM event taking place within six months from the date of the original event. **TRANSFERS** are not accepted less than five (5) working days before the event or training unless there are exceptional circumstances and the acceptance of the transfer is at the discretion of UNICOM.

Where a transfer has been made and a future date selected, the standard cancellation terms and conditions apply to the transferred booking just as if it were a new booking. UNICOM reserves the right to amend the event / training content programme if necessary and cannot guarantee repeats of the same event or training. All transfers and cancellations must be made in writing either by email or letter and are only valid when confirmed by email or in writing by UNICOM. Transfers and cancellations are not accepted by telephone.

## **INDEMNITY:**

Should for any reason outside the control of UNICOM Seminars Ltd, the venue or the presenters change, or the event be cancelled due to but not exclusively to industrial action, adverse weather conditions, an act of terrorism, presenter illness or other reasons beyond its control UNICOM Seminars Ltd will make reasonable endeavour to reschedule, but the client hereby indemnifies and holds UNICOM Seminars Ltd harmless from and against any and all costs, damages and expenses, including attorneys fees, which are incurred by the client as a consequence beyond the attendance fee due to UNICOM. The construction validity and performance of this Agreement shall be governed by all aspects by the laws of England to the exclusive jurisdiction of whose court the Parties hereby agree to submit.