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

Fitch Learning, London, 17 July, 2015

#### Topics covered:

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





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#### **DRAFT PROGRAMME**

#### 9:00 REGISTRATION AND COFFEE

#### **Multi-Dimensional Sentiment Analysis**

Stephen Pulman, Professor of Computational Linguistics, Oxford University/TheySay Analytics All sentiment analysis systems can deliver positive/negative/neutral classifications. But there are many other useful signals in text: emotion, intent, speculation, risk, etc. This talk will present a survey of the state of the art in recognising these other dimensions of sentiment in text and describe some practical applications in finance and elsewhere.

### Extracting User-Level Sentiments with Approval Relations.

Enza Messina, Professor Department of Informatics Systems & Communication (DISCo) -University of Milano-Bicocca, Italy and Federico Alberto Pozzi, currently: Analytical Consultant SAS / formerly: Researcher, University of Milano-Bicocca, Italy

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. To overcome these shortcomings, we present a framework that estimates user sentiments by combining post contents and approval relations, leading to significant improvements over the performance of complex classifiers based only on textual features.

## Text Mining- search techniques, information processing and an overview of industry applications

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

Abstract: To be supplied

Case Study: Twitter Sentiment and Text Analytics for Economics, Business and Finance

Tomaso Aste. Head of the Financial Computing &

Analytics Group and Director of the MSc in Financial Risk Management & Olga Kolchyna, Ph.D Researcher, University College London This talk is in two parts.

In the first part we present a methodology that improves accuracy of sentiment classification in tweets by combining dictionary and supervised machine learning approaches. Application to the analysis of the time series of Twitter sentiment of the world's most popular brands shows that this methodology can improve our understanding of their economic performance, predicting big events or market changes.

In the second part we explain how repeated and correlated patterns in the sentiment and text analysis can be used to build an information-based network that retains the relevant part of the data-interdependency structure. The structure of this network is a representation of the information in the dataset and such information can be efficiently analysed by using network-theoretic tools. Applications to finance and economics show the potentials of this approach.

#### Three overview presentations (TBC):

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

Presentation 1: RavenPack
Presentation 2: Bloomberg

Presentation 3: Thomson Reuters

Discussion and Close of Workshop

17:00 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, bio-technological 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 omni-channel 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 is a Ph.D. Candidate in Computer Science at the Department of Informatics Systems and Communications, University of Milano-Bicocca (Italy), where he works 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.

#### **Conference**

# "Behavioural Models and Sentiment Analysis Applied to Finance" 15—16 July 2015

**Pre Conference Workshops:** 

"Behavioural Finance: Foundations & Recent Developments"

"Market Microstructure, Liquidity and Automated Trading"

#### **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 fastemerging 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

The financial climate continues to be dynamic and evolving. New systems are being developed to analyze market behaviour and the attitudes of financial professionals. The emergence and impact of behavioural finance is reflected in the choice of recipients of the Nobel Prize in Economics (Daniel Kahneman, 2002 and Robert J. Shiller, 2013). The neoclassical paradigm -- featuring rational decision making, efficient markets hypothesis (EMH), the capital asset pricing model, and the Black-Scholes option pricing formula -- have dominated the quant finance landscape for the last half century. Recently a new financial paradigm has emerged, in which the psychological features considered by proponents of behavioural finance and the quantitative techniques favoured by the practitioners of established neoclassical finance are brought together.

Some contend that Behavioural Finance is more a collection of anomalies than a true branch of finance. However, innovative techniques of sentiment analysis are emerging which combine analysis of newswires, microblogs (Twitter) and, more recently, Google searches. In this workshop, some of the fascinating discoveries at the interface of behavioural and quantitative finance are presented.

#### PRESENTERS:

**Gulnur Muradoglu,** Professor of Finance, School of Business & Management, Queen Mary University of London

Klaus Reiner Schenk-Hoppé, Professor of Financial Economics, School of Social Sciences, University of Manchester and Adjunct Professor, Department of Finance, Norwegian School of Economics, Norway

**James Montier,** Asset Allocation Team, GMO (invited)

Other speakers awaiting confirmation.

#### 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) is President and founder of Northfield Information Services, Inc. Ilya Gorelik, CEO & Founder, Deltix

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17 July, 2015

<u>1st Delegate</u>
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Surname
Position
Email
Phone/Mobile Head of Department
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2nd Delegate
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#### Fees:

Super Early bird rate until 6 March 2015: £125 + VAT 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.