

CURRICULUM VITAE ET STUDIORUM

Andrea Esuli

Updated to November 23, 2016



Personal Information

- Born December 26th, 1977, in Pisa, Italy.
- Resident in Pisa, Italy.
- Married (2003), two daughters (2006, 2009).

Career Summary

- (September 2011 - current) **Research scientist** at Istituto di Scienza e Tecnologia dell'Informazione, Consiglio Nazionale delle Ricerche (ISTI-CNR) in Pisa.
- (January 2010 - August 2011) **Research fellow** at ISTI-CNR in Pisa.
- (January 2008 - December 2009) **Post-doc** at ISTI-CNR in Pisa.
- (January 2005 - December 2007) **Ph.D. student** at Dipartimento di Ingegneria dell'Informazione, Università di Pisa, **research grant holder** at ISTI-CNR in Pisa.
- (January 2002 - December 2004) **Research grant holder** at Dipartimento di Informatica, Università di Pisa.

Education

- **Ph.D. in Information Engineering** (2008)
Università di Pisa, June 2008.
Dissertation: “*Automatic Generation of Lexical Resources for Opinion Mining: Models, Algorithms and Applications*”
Advisors: Prof. Luca Simoncini (Dipartimento di Ingegneria dell'Informazione, Università di Pisa), Dott. Fabrizio Sebastiani (Istituto di Scienza e Tecnologie dell'Informazione, CNR).
- **Master Degree in Computer Science Technologies** (2003)
Laurea Specialistica in Tecnologie Informatiche, 110/110, con lode (full marks, cum laude).
Università di Pisa, December 2003.
- **Master Degree in Computer Science** (2001)
Laurea in Informatica, 110/110, con lode (full marks, cum laude).
Università di Pisa, October 2001.
Dissertation: “*Progettazione e realizzazione di Interfacce multimediali intelligenti per la presentazione di scenari dinamici*”
“Design and implementation of multimedia intelligent interfaces for the presentation of dynamic scenarios”
Advisors: Prof.ssa Maria Simi (Dipartimento di Informatica, Università di Pisa), Prof. Giuliano Pacini (Accademia Navale di Livorno).

Awards

- **Top 10% reviewer for ACM TOIS for period 2009-2012.** See *TOIS Reviewers: October 2009 to September 2012*, ACM TOIS 30(4), 2012, DOI 10.1145/2382438.2382446, ISSN 1046-8188

- **Finalist for 2011 Silver Medal of Market Research Society**

The Silver Medal is an annual award given by the MRS Awards Panel to the author(s) of the best paper published in the International Journal of Market Research in the year preceding the awarding year. In 2011 Andrea Esuli and co-author Fabrizio Sebastiani have been selected as one of the four finalists for the paper "Machines that Learn how to Code Open-Ended Survey Data" (IJMR2010).

- **ERCIM Cor Baayen Award 2010**

ERCIM - the European Research Consortium for Informatics and Mathematics, which gathers 21 european national research institutions - awards each year the Cor Baayen Award to a promising young researcher in computer science and applied mathematics. The award was created in 1995 to honour the first ERCIM President. The award consists of a cheque for 5000 Euro together with an award certificate.

Andrea Esuli has been the first Italian to win this award in sixteen editions.

Invited Talks

- **XXXII Conference of the Spanish Society for Natural Language Processing**, Salamanca, September 14-16, 2016.

Talk title: "Efficient cross-domain and cross-language learning of sentiment classifiers".

- **Global WordNet Conference**, Szeged, Hungary, January 22-25, 2008.

Talk title: "Annotating WordNet Synsets by Sentiment-Related Information: Issues and Potential Solutions".

- **Reading Group on Language and Intelligence, Ph.D. course in Computer Science**, Università di Pisa, invited seminar, June 6, 2006.

Talk title: "Opinion Mining".

Research projects

- **VCS3** (ISTI-CNR, started 04/2016, ongoing)

Andrea Esuli is the project leader of the VCS3 project, which is an evolution of the previous VCS project.

This project continues the development of the VCS system, supporting the exploration of distributional indexing models for the representation of text and the application of deep learning methods to text classification.

Relevant publications: JAIR2016a, JAIR2016b, SIGIR2016

- **VCS** (ISTI-CNR, started 10/2005, ended 04/2016)

Andrea Esuli is the technical leader in the development of the Verbatim Coding System (VCS), an automated system for verbatim coding, an important phase of customer relationship management (CRM) which consists in the classification of the customers of a company based on the textual responses that they have returned to questions concerning the satisfaction in the product or service purchased by the company.

VCS has been originally developed for the Egg Group plc, one of the world's largest purely online banks (3.2 million customers), to automate their CRM department.

VCS is the core technology adopted by Language Logic llc, Cincinnati, USA, for the automatic coding of verbatim responses. Language Logic is the world leader in providing verbatim management services, with millions of verbatims processed every month.

VCS has been awarded the Vespucci Prize 2006 in the "Successful innovation in marketing" section. The Vespucci prize, now in its 3rd edition, is being awarded by Consiglio Regionale della Toscana, Confindustria Toscana, Federazione Regionale dei Cavalieri del Lavoro della Toscana, Banca Cassa di Risparmio di Firenze, Ente Cassa di Risparmio di Firenze, and is awarded "to particularly significant and innovative initiatives and projects, capable of combining ethics, invention, research and economic results with quality, development, and innovation."

In 2007 VCS has been awarded with the "Best New Thinking Award" of the Market Research Society, the greatest association of professionals in market research.

Relevant publications: TKDD2015a, TKDD2015b, CIKM2015, SAC2015b, NECO2014, SAC2015a, IJMR2014, TOIS2013, NGC2013, ESWA2013b, SIGIR2012, IEEEIS2010, IJMR2010, ECIR2009b, ECIR2009a, ICTIR2009, IR2008, SPIRE2006a, SPIRE2006b.

- **ASSETS** (ISTI-CNR, started 05/2010, ended 04/2012)

Advanced Service Search and Enhancing Technological Solutions for the European Digital Library European FP7 ICT PSP (2010-2011).

ASSETS is a 2-year project that aims to improve the usability of the Europeana portal (<http://www.europeana.eu>) by developing, implementing and deploying software services focused on search, browsing and interfaces. All software services created by ASSETS will be available as Open Source code.

Andrea Esuli is workpackage leader and responsible of Work Package 2.1 "Ingestion", aimed at providing Europeana with a toolset that allows content providers such as museums, libraries and archives to contribute their content to Europeana in a standardised and effective way. This process will generate enriched, clean and classified metadata, thereby increasing search effectiveness and improving the user's browsing experience.

Andrea Esuli is also responsible and lead developer for tasks 2.1.1 Metadata Cleaning, 2.1.2 Knowledge Extraction, and 2.1.3 Metadata Classification, which all aim to provide machine learning-based methods for the automatic enrichment of metadata records composing the Europeana's collections.

Relevant publications: TPDFL2012.

- **MiningForLife** (ISTI-CNR, started 05/2009, ended 04/2010)

Technological transfer project, funded by NoemaLife Spa.

The focus of the project is the development of methods for the automatic processing of medical reports of patients, in order to allow the automatic population of structured DBs and simplify the data exchange between different medical specialists.

Andrea Esuli is the workpackage leader of the "automatic text classification" and the "information extraction" workpackages.

Relevant publications: JBI2013, ESWA2013a.

- **SAPIR** (ISTI-CNR, started 01/2007, ended 06/2009)

European project, IST FP6 "SAPIR: Search In Audio Visual Content Using Peer-to-peer IR". Andrea Esuli contributed to the development and analysis of the CoPhiR test collection, the largest image metadata collection currently available for research purposes, with 106 million images. Andrea Esuli individually invented a novel similarity search algorithm that could effectively and efficiently work on such large collections.

Relevant publications: CORR2009, VLDL2009, SISAP2009, LSDSIR2009.

- **OntoText** (ISTI-CNR, started 10/2004, ended 03/2008)

Research project funded by the Provincia Autonoma di Trento. Theme: “From Text to Knowledge for the Semantic Web”. Andrea Esuli has been the technical leader for ISTI-CNR, working on the workpackage on “Opinion Mining”.

Relevant publications: CIKM2005, EACL2006, LREC2006, LTC2007a, LTC2007b, ACL2007, LREC2008.

- **OpTex** (ISTI-CNR, started 12/2004, ended 12/2006)

Curiosity-driven project funded by ISTI-CNR on sentiment classification.

Relevant publications: CIKM2005, EACL2006, LREC2006.

- **ECD** (Università di Pisa, started 01/2002, ended 12/2005)

“Technologies and Services for Enhanced Content Delivery”, funded by “Fondo Speciale Innovazione 2000”, Ministero dell’Istruzione, dell’Università e della Ricerca.

Andrea Esuli has taken part to the “Action 2: Mine the Web”, working on the theme: “Participatory search”.

Relevant publications: WWWI2004.

- **ClickWorld** (Università di Pisa, started 01/2002, ended 12/2003)

Industrial research project funded by the Ministero dell’Istruzione, dell’Università e della Ricerca.

Theme: Customized Proactive Web. Andrea Esuli worked on the theme “techniques for indexing, automatic classification, linguistic analysis, and information extration, for the selection and proactive presentation of customized Web content, based on user profiles”.

Relevant publications: WWW2004.

Professional Service

- Editorial boards:

- **IPM**, member of the editorial board of *Information Processing & Management*, Elsevier, ISSN 0306-4573.

- Project proposal reviewer for the following agencies:

- **MISE**, *Ministero dello Sviluppo Economico*, Italian Ministry of Economic Development.
- **GAČR**, *Grantová agentura České republiky* (Czech Science Foundation).
- **IWT**, *agentschap voor Innovatie door Wetenschap en Technologie* (research and innovation funding agency of the Flemish government).

- Journals and book series reviewer:

- **IR**, *Information Retrieval*, Springer, ISSN 1386-4564.
- **IS**, *Information Systems*, Elsevier, ISSN 0306-4379.
- **IEEE TAFFC**, *IEEE Transactions on Affective Computing*, ISSN 0162-8828.
- **IPM**, *Information Processing & Management*, Elsevier, ISSN 0306-4573.
- **KAIS**, *Knowledge and Information Systems*, Springer, ISSN 0219-1377.
- **IEEE CIM**, *IEEE Computational Intelligence Magazine*, ISSN 1556-603X.
- **IEEE IS**, *IEEE Intelligent Systems*, ISSN 1541-1672.

- **IJCoL**, *Italian Journal of Computational Linguistics*, ISBN 978-88-99200-63-3
 - **ACM TOIS**, *ACM Transactions on Information Systems*, ACM, ISSN 1046-8188.
 - **IJSWIS**, *International Journal on Semantic Web and Information Systems*, ISSN 1552-6283.
 - **IEEE TKDE**, *IEEE Transactions on Knowledge & Data Engineering*, ISSN 1041-4347.
 - **IEEE CIM**, *IEEE Computational Intelligence Magazine*, ISSN 1556-603X.
 - **AIIM**, *Artificial Intelligence in Medicine*, Elsevier, ISSN 0933-3657.
 - **ACM TWEB**, *ACM Transactions on the Web*, ACM, ISSN 1559-1131.
 - **TACL**, *Transactions of the Association for Computational Linguistics*, ISSN 2307-387X.
 - **TCJ**, *The Computer Journal*, Oxford Journals, ISSN 0010-4620.
 - **JASIST**, *Journal of the American Society for Information Science and Technology*, Wiley, ISSN 1532-2890.
 - **LLC**, *Literary and Linguistic Computing*, Oxford Journals, ISSN 0268-1145.
 - **NEPL**, *Neural Processing Letters* Springer, ISSN 1370-4621.
 - **Synthesis Lectures on Human Language Technologies** (book series), Morgan&Claypool, ISSN 1947-4040.
 - **JIS**, *Journal of Information Science*, SAGE, ISSN 0165-5515.
 - **CSI**, *Computer Standards & Interfaces*, Elsevier, ISSN 0920-5489.
 - **LRE**, *Language Resources and Evaluation*, Springer, ISSN 1574-020X.
 - **AIComm**, *AI Communications*, IOS Press, ISSN 0921-7126.
 - **IEEE TPAMI**, *IEEE Transactions on Pattern Analysis and Machine Intelligence*.
- Organization of conferences:
 - Local Chair of **SIGIR 2016**, 39th International ACM SIGIR Conference on Research and Development in Information Retrieval, Pisa, Italy, July 17-21, 2016.
 - Tutorial Chair of **SPIRE 2011**, 18th Symposium on String Processing and Information Retrieval, Pisa, Italy, October 17-21, 2011.
- Participation to program committees:
 - **AAAI 2017**, 31st AAI Conference on Artificial Intelligence, San Francisco, USA, February 4-9, 2017.
 - **IIR 2016**, 7th Italian Information Retrieval Workshop, Venezia, Italy, May 30-31, 2016.
 - **MultiLingMine 2016**, 1st International Workshop on Modeling, Learning and Mining for Cross/Multilinguality, Padova, Italy, March 20, 2016.
 - **SISAP 2016**, 9th International Conference on Similarity Search and Applications, Tokyo, Japan, October 24-26, 2016.
 - **SAC 2016**, 31st ACM/SIGAPP Symposium on Applied Computing, Pisa, Italy, April 4-8, 2016.
 - **SemEval 2016**, (reviewer), 10th International Workshop on Semantic Evaluation, San Diego, California, June 16-17, 2016.
 - **CIKM 2015**, 24th ACM International Conference on Information and Knowledge Management, Melbourne, Australia, Oct 19-23, 2015.
 - **EMNLP 2015**, Conference on Empirical Methods in Natural Language Processing, Lisbon, Portugal, September 17-21, 2015.
 - **SISAP 2015**, 8th International Conference on Similarity Search and Applications, Glasgow, Scotland, UK, October, 12 - 14, 2015.

- **MoKMaSD 2015** , 4th International Symposium on Modelling and Knowledge Management applications: Systems and Domains, York, UK, September 8 2015.
- **ASONAM 2015**, IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, Paris, France, August 25-28, 2015.
- **IIR 2015**, 6th Italian Information Retrieval Workshop, Cagliari, Italia, May 25-26, 2015.
- **SIGIR 2014**, 37th Annual International ACM SIGIR Conference on Research & Development on Information Retrieval, Gold Coast, Australia, July 6-11, 2014.
- **SAC 2014**, “Information Access and Retrieval” track, 29th Symposium On Applied Computing, Gyeongju, Korea, March 24-28, 2014.
- **WSDM 2014** (reviewer), 7th ACM Web Search and Data Mining conference, New York, USA, February 24-28, 2014.
- **LREC 2014**, 9th International Conference on Language Resources and Evaluation, Reykjavik, Iceland, May 26-31, 2014.
- **FoIKS 2014** (reviewer), 8th International Symposium on Foundations of Information and Knowledge Systems, Bordeaux, France, March 3-7, 2014.
- **MoKMaSD 2014** , 3rd International Symposium on Modelling and Knowledge Management applications: Systems and Domains, Grenoble, France, September 2, 2014.
- **DEXA 2013** (reviewer), 24th International Conference on Database and Expert Systems Applications, Prague, Czech Republik, August 26-30, 2013.
- **ESSEM 2013**, Emotion and Sentiment in Social and Expressive Media, AI*IA 2013 Workshop, Torino, Italy, December 3, 2013.
- **ACL 2013**, 51st Annual Meeting of the Association for Computational Linguistics, Sofia, Bulgari, August 4-9, 2013.
- **SIGIR 2013**, 36th Annual International ACM SIGIR Conference on Research & Development on Information Retrieval, Dublin, Ireland, July 28- August 1, 2013.
- **NAACL 2013**, the 2013 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies , Atlanta, USA, June 09-15, 2013.
- **EMNLP 2013**, Conference on Empirical Methods in Natural Language Processing, Seattle, USA, October 18-21, 2013.
- **IJCNLP 2013**, 6th International Joint Conference on Natural Language Processing, Nagoya, Japan, October 14-18, 2013.
- **SISAP 2013**, 6th International Conference on Similarity Search and Applications, A Coruña, Spain, October 2-4, 2013.
- **SAC 2013**, “Information Access and Retrieval” track, 28th Symposium On Applied Computing, Coimbra, Portugal, March 18-22, 2013.
- **ICISTM 2012**, 6th International Conference on Information Systems, Technology and Management, Grenoble, France, March 28-30, 2012.
- **CONTENT 2012**, 4th International Conference on Creative Content Technologies, Nice, France, July 22-27, 2012.
- **SAC 2012**, “Information Access and Retrieval” track, 27th Symposium On Applied Computing, Riva del Garda (Trento), Italy, March 26-30, 2012.
- **ACL-HTL 2011**, 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies, Portland, Oregon, USA, June 19-24, 2011.
- **SPIRE 2010**, 17th Symposium on String Processing and Information Retrieval, Los Cabos, Mexico, October 11-13, 2010.
- **SIGIR 2010**, 33rd Annual International ACM SIGIR Conference on Research & Development on Information Retrieval, Geneva, Switzerland, July 19-23, 2010.

- **SIGIR 2010** (Poster and Demo session), 33rd Annual International ACM SIGIR Conference on Research & Development on Information Retrieval, Geneva, Switzerland, July 19-23, 2010.
 - **ACL 2010**, 48th Annual Meeting of the Association for Computational Linguistics, Uppsala, Sweden, July 11-16, 2010.
 - **NAACL-HLT 2010**, “Sentiment” area, 11th Annual Conference of the North American Chapter of the Association for Computational Linguistics, Los Angeles, USA, June 1-6, 2010.
 - **NAACL 2010 CAAGET Workshop**, workshop on Computational Approaches to Analysis and Generation of Emotion in Text, Los Angeles, USA, June 5, 2010.
 - **TextGraph-5 2010**, 5th ACL workshop on Graph-based Methods for Natural Language Processing.
 - **SAC 2010**, “Information Access and Retrieval” track, the 25th ACM Symposium On Applied Computing, Crans-Montana, Switzerland, March 22-26, 2010.
 - **EMNLP 2009**, “Sentiment Analysis, Opinion Mining and Text Classification” area, Conference on Empirical Methods in Natural Language Processing, Singapore, August 6-7, 2009.
 - **EMNLP 2009**, “NLP applications” area, Conference on Empirical Methods in Natural Language Processing, Singapore, August 6-7, 2009.
 - **ACL-IJCNLP 2009**, “Sentiment Analysis, Opinion Mining and Text Classification” area, 47th Annual Meeting of the Association for Computational Linguistics and the 4th International Joint Conference on Natural Language Processing of the Asian Federation of Natural Language Processing, Singapore, August 2-7, 2009.
 - **CAW2.0 2009**, Content Analysis 2.0 Workshop, co-located with the ACM WWW Conference, Madrid, Spain, April 21, 2009.
 - **SIGIR 2009**, 32nd Annual International ACM SIGIR Conference on Research & Development on Information Retrieval, Boston, USA, July 19-23, 2009.
 - **SAC 2009**, “Information Access and Retrieval” track, 24th ACM Symposium On Applied Computing, Honolulu, Hawaii, USA, March 8 - 12, 2009.
 - **ECIR 2008**, 30th European Conference on Information Retrieval, Glasgow, Scotland, 30th March - 3rd April, 2008.
 - **ECIR 2008 Poster session**, 30th European Conference on Information Retrieval, Glasgow, Scotland, 30th March - 3rd April, 2008.
 - **SAC 2008**, “Information Access and Retrieval” track, 23th ACM Symposium On Applied Computing, Cear, Brazil, March 16 - 20, 2008.
 - **SAC 2007**, “Information Access and Retrieval” track, 22th ACM Symposium On Applied Computing, Seoul, Korea, March 11 - 15, 2007.
 - **SIGIR 2007** (Poster and Demo session), 30th Annual International ACM SIGIR Conference on Research & Development on Information Retrieval, Amsterdam, Netherlands, July 23-27 2007.
 - **COLING ACL 2006**, Joint Conference of the International Committee on Computational Linguistics and the Association for Computational Linguistics, Sydney, Australia, July 17-21, 2006.
- Role of external examiner:
 - Università di Pisa, October 17, 2016, progress report evaluation board, “Dottorato di Ricerca in Informatica”.
 - Universidad de Granada, September 27, 2013, member of the PhD exam commission of the “Escuela Internacional de Posgrado”.

Advisor activity

- Ph.D. students:
 - (20014-current) Tiziano Fagni. Topics in Automatic Text Categorization.
 - (2010-2014) Diego Marcheggiani. Beyond linear chain: a journey through conditional random fields for information extraction from text.
 - (2010-2014) Giacomo Berardi. Semi-Automated Text Classification.
 - (2009-2011) Stefano Baccianella. Topic in Ordinal Regression methods for Sentiment Analysis.
- M.S. and B.S. students:
 - (2009) Diego Marcheggiani (M.S.). Active Learning method for Information Extraction
 - (2008) Stefano Baccianella (M.S.). Ordinal Regression methods for Sentiment Analysis.
 - (2007) Claudio Petroni (B.S.). Semi-supervised Boosting algorithms.
 - (2006) Sebastiano Brafa (B.S.). Random-walk method for Sentiment Analysis.

Teaching activity

- Member of the board of the “Big Data” postgraduate master course organized by the Department of Computer Science of the University of Pisa. He is also the teacher of the “Sentiment Analysis and Opinion Mining” module.

H-Index

21, measured on 22/11/2016 on Google Scholar.

8, measured on 22/11/2016 on Web of Knowledge.

9, measured on 22/11/2016 on Scopus.

Publications

- **International Journals**

- JAIR2016b Alejandro Moreo Fernández, Andrea Esuli and Fabrizio Sebastiani
Lightweight Random Indexing for Polylingual Text Classification
Journal of Artificial Intelligence Research, volume 57, pages 151-185, ISSN 1076-9757, DOI 10.1613/jair.5194
- JAIR2016a Alejandro Moreo Fernández, Andrea Esuli, Fabrizio Sebastiani
Distributional Correspondence Indexing for Cross-Lingual and Cross-Domain Sentiment Classification
Journal of Artificial Intelligence Research, volume 55, pages 131-163, ISSN 1076-9757, DOI 10.1613/jair.4762
- TKDD2015a Giacomo Berardi, Andrea Esuli, Fabrizio Sebastiani
Utility-Theoretic Ranking for Semiautomated Text Classification
ACM Transactions on Knowledge Discovery from Data, Volume 10 Issue 1, June 2015 Article No. 6, ISSN 1556-4681, DOI 10.1145/2742548
- TKDD2015b Andrea Esuli, Fabrizio Sebastiani
Optimizing Text Quantifiers for Multivariate Loss Functions
ACM Transactions on Knowledge Discovery from Data, Volume 9 Issue 4, June 2015 Article No. 27, ISSN 1556-4681, DOI 10.1145/2700406

- IS2015 Giuseppe Amato, Andrea Esuli, and Fabrizio Falchi
A Comparison of Pivot Selection Techniques for Permutation-Based Indexing
Information Systems, volume 52, pages 176-188, ISSN 0306-4379, DOI 10.1016/j.is.2015.01.010.
- NECO2014 Stefano Baccianella, Andrea Esuli, and Fabrizio Sebastiani
Feature Selection for Ordinal Text Classification
Neural Computation, 26(3), 2014, pages 557-591.
 The MIT Press, ISSN 0899-7667, DOI 10.1162/NECO_a.00558.
- IJMR2014 Giacomo Berardi, Andrea Esuli and Fabrizio Sebastiani
Optimising human inspection work in automated verbatim coding
International Journal of Market Research 56 (4), 489-512, ISSN 0025-3618, DOI 10.2501/IJMR-2014-032.
- TOIS2013 Andrea Esuli and Fabrizio Sebastiani
Improving Text Classification Accuracy by Training Label Cleaning
ACM Transactions on Information Systems, 31(4), 2013, 28 pages, ISSN 1046-8188, DOI 10.1145/2516889, ACM Press.
- IS2013 Giacomo Berardi, Andrea Esuli, Fabrizio Sebastiani, and Fabrizio Silvestri
Endorsements and Rebuttals in Blog Distillation
Information Sciences, 249, pages 3847, ISSN 0020-0255, DOI 10.1016/j.ins.2013.05.037, Elsevier, 2013.
- NGC2013 Stefano Baccianella, Andrea Esuli, and Fabrizio Sebastiani
StarTrack: The Next Generation (of Product Review Management Tools)
New Generation Computing, Volume 31, Issue 1, January 2013, pages 47-70, ISSN 0288-3635, DOI 10.1007/s00354-012-0122-y.
- JBIB2013 Andrea Esuli, Diego Marcheggiani, and Fabrizio Sebastiani
An Enhanced CRFs-based System for Information Extraction from Radiology Reports
Journal of Biomedical Informatics, 46(3), pages 425-435, 2013, ISSN 1532-0464, Elsevier, DOI 10.1016/j.jbi.2013.01.006.
- ESWA2013b Stefano Baccianella, Andrea Esuli and Fabrizio Sebastiani
Using Micro-Documents for Feature Selection: The Case of Ordinal Text Classification
Expert Systems and Applications, 40(11), pages 4687-4696, 2013, ISSN 0957-4174, Elsevier, DOI 10.1016/j.eswa.2013.02.010.
- ESWA2013a Stefano Baccianella, Andrea Esuli and Fabrizio Sebastiani
Variable-Constraint Classification and Quantification of Radiology Reports under the ACR Index
Expert Systems and Applications, 40(9), pages 3441-3449, 2013, ISSN 0957-4174, Elsevier, DOI 10.1016/j.eswa.2012.12.052.
- IPM2012 Andrea Esuli
Use of permutation prefixes for efficient and scalable approximate similarity search
Information Processing & Management, Volume 48, Issue 5, September 2012, pages 889-902, ISSN 0306-4573, DOI 10.1016/j.ipm.2010.11.011.
- IJMR2010 Andrea Esuli and Fabrizio Sebastiani
Machines that Learn how to Code Open-Ended Survey Data
International Journal of Market Research, 52(6), 2010, pages 775-800, ISSN 0025-3618, DOI 10.2501/S147078531020165X.
- IEEEIS2010 Andrea Esuli, Fabrizio Sebastiani
Sentiment Quantification
Invited contribution to IEEE Intelligent Systems, 25(4), 2010, pages 72-75, IEEE Computer Society, Los Alamitos, CA, USA, ISSN 1541-1672.
- IR2008 Andrea Esuli, Tiziano Fagni and Fabrizio Sebastiani
Boosting multi-label hierarchical text categorization
Information Retrieval, 11(4), 2008, pages 287-313, Springer Netherlands, ISSN 1386-4564.

- **Book chapters**

- LNCS2011 Andrea Esuli and Fabrizio Sebastiani
Enhancing Opinion Extraction by Automatically Annotated Lexical Resources (Extended Version)
Lecture Notes in Computer Science n. 6562, In Zygmunt Vetulani (ed.), Human Language Technology. Challenges for Computer Science and Linguistics, Revised selected papers from the 4th Language Technology Conference, Springer Verlag, Heidelberg, DE, 2011, pages 500-511, ISBN 978-3-642-20094-6.
- LNAI2009 Shlomo Argamon, Kenneth Bloom, Andrea Esuli and Fabrizio Sebastiani
Automatically Determining Attitude Type and Force for Sentiment Analysis
Lecture Notes in Computer Science, n. 5603, “Human Language Technology. Challenges of the Information Society”, Springer Berlin/Heidelberg, DE, 2009, pages 218-231, ISBN 978-3-642-04234-8.

- **International conferences**

- SIGIR2016 Alejandro Moreo Fernández, Andrea Esuli, Fabrizio Sebastiani
Distributional Random Oversampling for Imbalanced Text Classification
Proceedings of the 39th International ACM SIGIR conference on Research and Development in Information Retrieval, SIGIR 2016, Pisa, Italy, July 17-21, 2016. **ACM**, New York, NY, USA, pages 805-808, ISBN 978-1-4503-4069-4, DOI 10.1145/2911451.2914722
- CIKM2015 Giacomo Berardi, Andrea Esuli, Craig Macdonald, Iadh Ounis, Fabrizio Sebastiani
Semi-Automated Text Classification for Sensitivity Identification
Proceedings of the 24th ACM international conference on Information and knowledge management, CIKM 2015, Melbourne, Australia, October 19-23, 2015. **ACM**, New York, NY, USA, pages 1711-1714, ISBN 978-1-4503-3794-6, DOI 10.1145/2806416.280651
- ECIR2015 Andrea Esuli, Alejandro Moreo Fernández
Distributional Correspondence Indexing for Cross-Language Text Categorization
Proceedings of the European Conference on Information Retrieval, ECIR 2015, Vienna, Austria, 2015.
Lecture Notes in Computer Science 9022, pages 104-109, Springer Verlag, Heidelberg, DE, ISBN 978-3-319-16353-6, DOI 10.1007/978-3-319-16354-3_12.
- SAC2015a Giacomo Berardi, Andrea Esuli, Tiziano Fagni, Fabrizio Sebastiani
Classifying websites by industry sector: a study in feature design
Proceedings of the 30th Annual ACM Symposium on Applied Computing. **ACM**, New York, NY, USA, pages 1053-1059, ISBN 978-1-4503-3196-8, DOI 10.1145/2695664.269571
- SAC2015b Giacomo Berardi, Andrea Esuli, Tiziano Fagni, Fabrizio Sebastiani
Multi-store metadata-based supervised mobile app classification
Proceedings of the 30th Annual ACM Symposium on Applied Computing. **ACM**, New York, NY, USA, pages 585-588, ISBN 978-1-4503-3196-8, DOI 10.1145/2695664.2695997
- SAC2015c Giacomo Berardi, Diego Ceccarelli, Andrea Esuli, Diego Marcheggiani
On the impact of entity linking in microblog real-time filtering
Proceedings of the 30th Annual ACM Symposium on Applied Computing. **ACM**, New York, NY, USA, pages 1066-1071, ISBN 978-1-4503-3196-8, DOI 10.1145/2695664.269571
- ECIR 2014 Andrea Esuli, Diego Marcheggiani, Fabrizio Sebastiani, and Oscar Tackstrom
Hierarchical Multi-label Conditional Random Fields for Aspect-Oriented Opinion Mining
Proceedings of the European Conference on Information Retrieval, ECIR 2014, Amsterdam, NL, 2014.
Lecture Notes in Computer Science 8416, pages 273-285, Springer Verlag, Heidelberg, DE, ISBN 978-3-319-06027-9, DOI 10.1007/978-3-319-06028-6_23.

- SISAP2013 Giuseppe Amato, Andrea Esuli, and Fabrizio Falchi
Pivot Selection Strategies for Permutation-Based Similarity Search
 Proceeding of the 6th International Conference on Similarity Search and Applications, SISAP 2013, A Coruña, SP, 2013.
Lecture Notes in Computer Science 8199, pages 91-102, Springer Verlag, Heidelberg, DE, ISBN 978-3-642-41061-1, DOI 10.1007/978-3-642-41062-8_10.
- TPDL2012 Giacomo Berardi, Andrea Esuli, Sergiu Gordea, Diego Marcheggiani, and Fabrizio Sebastiani
Metadata Enrichment Services for the Europeana Digital Library
 Proceedings of the 15th International Conference on the Theory and Practice of Digital Libraries, TPDL 2012, Paphos, CY, 2012.
Lecture Notes in Computer Science 7489, pages 508-511, Springer Verlag, Heidelberg, DE, ISBN 978-3-642-33289-0.
- SIGIR2012 Giacomo Berardi, Andrea Esuli, and Fabrizio Sebastiani
A Utility-Theoretic Ranking Method for Semi-Automated Text Classification
 Proceedings of the 35th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, SIGIR 2012, Portland, US, 2012.
ACM, New York, NY, USA, pages 961-970, ISBN 978-1-4503-1472-5.
- NLDB2012 Giacomo Berardi, Andrea Esuli, Fabrizio Sebastiani and Fabrizio Silvestri
Blog Distillation via Sentiment-Sensitive Link Analysis
 Proceedings of the 17th International Conference on Applications of Natural Language Processing to Information Systems, NLDB 2012, Groningen, NL, 2012.
Lecture Notes in Computer Science 7337, pages 228-233, Springer Verlag, Heidelberg, DE, ISBN 978-3-642-31177-2.
- TREC2011 Giacomo Berardi, Andrea Esuli, Diego Marcheggiani, and Fabrizio Sebastiani
ISTI@TREC Microblog Track 2011: Exploring the Use of Hashtag Segmentation and Text Quality Ranking
 Proceedings of The Twentieth Text REtrieval Conference, TREC 2011.
National Institute of Standards and Technology (NIST), Special Publication 500-295, Gaithersburg, US, 2011.
- CLEF2010 Andrea Esuli and Fabrizio Sebastiani
Evaluating information extraction
 Proceedings of the Conference on Multilingual and Multimodal Information Access Evaluation, CLEF 2010, Padova, IT, 2010.
Lecture Notes in Computer Science 6360, pages 100-111, Springer Verlag, Heidelberg, DE, ISBN 978-3-642-15997-8.
- SAC2010 Stefano Baccianella, Andrea Esuli and Fabrizio Sebastiani
Feature Selection for Ordinal Text Classification
 Proceedings of the 25th Symposium On Applied Computing, Crans-Montana, Switzerland, 2010.
ACM, New York, NY, USA, pages 1750-1756, ISBN 978-364204416-8.
- LREC2010 Stefano Baccianella, Andrea Esuli and Fabrizio Sebastiani
SentiWordNet 3.0: An Enhanced Lexical Resource for Sentiment Analysis and Opinion Mining
 Proceedings of the 7th Conference on Language Resources and Evaluation, LREC 2010, Valletta, MT, 2010.
European Language Resources Association (ELRA), Paris, FR, ISBN 2-9517408-6-7.
- ISDA2009 Stefano Baccianella, Andrea Esuli and Fabrizio Sebastiani
Evaluation Measures for Ordinal Text Classification
 Proceedings of the 9th IEEE International Conference on Intelligent Systems Design and Applications, ISDA 2009, Pisa, IT, 2009.

- IEEE Computer Society**, Los Alamitos, CA, USA, pages 283-287, ISBN 978-076953872-3.
- LTC2009 Andrea Esuli and Fabrizio Sebastiani
Enhancing Opinion Extraction by Automatically Annotated Lexical Resources
 Proceedings of the 4th Language & Technology Conference, LTC 2009, Poznan, PL, November 6-8, 2009.
Wydawnictwo Poznanskie Sp. z o. o., Poznan, PL, pages 224-228, ISBN 978-83-7177-746-2.
- ECIR2009c Stefano Baccianella, Andrea Esuli and Fabrizio Sebastiani
Multi-facet Rating of Product Reviews
 Advances in Information Retrieval, Proceedings of the 31th European Conference on IR Research, ECIR 2009, Toulouse, France, April 6-9, 2009.
Lecture Notes in Computer Science, n. 5478, Springer Verlag, pages 461-472, ISBN 978-3-642-00957-0.
- ECIR2009b Andrea Esuli and Fabrizio Sebastiani
Encoding Ordinal Features into Binary Features for Text Classification
 Advances in Information Retrieval, Proceedings of the 31th European Conference on IR Research, ECIR 2009, Toulouse, France, April 6-9, 2009.
Lecture Notes in Computer Science, n. 5478, Springer Verlag, pages 771-775, ISBN 978-3-642-00957-0.
- ECIR2009a Andrea Esuli and Fabrizio Sebastiani
Active Learning Strategies for Multi-Label Text Classification
 Advances in Information Retrieval, Proceedings of the 31th European Conference on IR Research, ECIR 2009, Toulouse, France, April 6-9, 2009.
Lecture Notes in Computer Science, n. 5478, Springer Verlag, pages 102-113, ISBN 978-3-642-00957-0.
- ICTIR2009 Andrea Esuli and Fabrizio Sebastiani
Training Data Cleaning for Text Classification
 Advances in Information Retrieval Theory, Proceedings of the Second International Conference on the Theory of Information Retrieval, ICTIR 2009, Cambridge, UK, September 10-12, 2009.
Lecture Notes in Computer Science, n. 5766, Springer Verlag, pages 29-41, ISBN 978-3-642-04416-8.
- LREC2008 Andrea Esuli, Fabrizio Sebastiani and Ilaria Clara Urciuoli
Annotating Expressions of Opinion and Emotion in the Italian Content Annotation Bank
 Proceedings of the Sixth International Language Resources and Evaluation, LREC 2008, Marrakech, Morocco, May 28-30, 2008.
European Language Resources Association (ELRA), Paris, FR, ISBN 2-9517408-4-0.
- ACL2007 Andrea Esuli and Fabrizio Sebastiani
PageRanking WordNet Synsets: An Application to Opinion Mining
 Proceedings of the 45th Annual Meeting of the Association for Computational Linguistics, ACL 2007, Prague, Czech Republic, June 23-30, 2007.
The Association for Computational Linguistics, East Stroudsburg, PA, USA, pages 424-431, ISBN 978-1-932432-86-2.
- LTC2007b Shlomo Argamon, Kenneth Bloom, Andrea Esuli and Fabrizio Sebastiani
Automatically Determining Attitude Type and Force for Sentiment Analysis
 Proceedings of the 3rd Language & Technology Conference, LTC 2007, Poznan, PL, October 5-7, 2007.
Wydawnictwo Poznanskie Sp. z o. o., Poznan, PL, pages 369-373, ISBN 978-83-7177-407-2.

- LTC2007a Andrea Esuli and Fabrizio Sebastiani
Random-Walk Models of Term Semantics: An Application to Opinion-Related Properties
 Proceedings of the 3rd Language & Technology Conference, LTC 2007, Poznan, PL, October 5-7, 2007.
Wydawnictwo Poznanskie Sp. z o. o., Poznan, PL, pages 221-225, ISBN 978-83-7177-407-2.
- SPIRE2006b Andrea Esuli, Tiziano Fagni and Fabrizio Sebastiani
MP-Boost: A Multiple-Pivot Boosting Algorithm and Its Application to Text Categorization
 Proceeding of the 13th International Conference on String Processing and Information Retrieval, SPIRE 2006, Glasgow, UK, October 11-13, 2006.
Lecture Notes in Computer Science, n. 4209, Springer Berlin/Heidelberg, DE, pages 1-12, ISBN 978-3-540-45774-9.
- SPIRE2006a Andrea Esuli, Tiziano Fagni and Fabrizio Sebastiani
TreeBoost.MH: A Boosting Algorithm for Multi-label Hierarchical Text Categorization
 Proceeding of the 13th International Conference on String Processing and Information Retrieval, SPIRE 2006, Glasgow, UK, October 11-13, 2006.
Lecture Notes in Computer Science, n. 4209, Springer Berlin/Heidelberg, DE, pages 13-24, ISBN 978-3-540-45774-9.
- EACL2006 Andrea Esuli and Fabrizio Sebastiani
Determining Term Subjectivity and Term Orientation for Opinion Mining
 Proceedings of 11st Conference of the European Chapter of the Association for Computational Linguistics, Proceedings of the Conference, EACL 2006, Trento, Italy, April 3-7, 2006.
The Association for Computational Linguistics, East Stroudsburg, PA, USA, pages 193-200, ISBN 1-932432-59-0.
- LREC2006 Andrea Esuli and Fabrizio Sebastiani
SentiWordNet: A Publicly Available Lexical Resource for Opinion Mining
 Proceedings of the 5th Conference on Language Resources and Evaluation, LREC 2006, Genova, IT, 24-26 May, 2006.
European Language Resources Association (ELRA), Paris, FR, pages 417-422, ISBN 2-9517408-2-4.
- CIKM2005 Andrea Esuli and Fabrizio Sebastiani
Determining the semantic orientation of terms through gloss analysis
 Proceedings of the 14th ACM international conference on Information and knowledge management, CIKM 2005, Bremen, Germany, October 31 - November 5, 2005.
ACM, New York, NY, USA, pages 617-624, ISBN 1-59593-140-6.
- TREC2004 Giuseppe Attardi, Andrea Esuli and Patel Chirag
Using Clustering and Blade Clusters in the TeraByte task
 Proceedings of the Thirteenth Text REtrieval Conference, TREC 2004, November 16-19, 2004.
National Institute of Standards and Technology (NIST), Special Publication 500-261, Gaithersburg, US.
- WWWI2004 Giuseppe Attardi, Andrea Esuli, Lucian Hancu and Maria Simi
Participatory Search
 Proceedings of the IADIS International Conference WWW/Internet 2004, Madrid, Spain, October 6-8, 2004.
IADIS, Lisboa, PT, pages 643-650, ISBN 972-99353-0-0.
- WWW2004 Giuseppe Attardi, Andrea Esuli and Maria Simi
Best bets: thousands of queries in search of a client
 Proceedings of the 13th international conference on World Wide Web - Alternate Track Papers & Posters, WWW 2004, New York, NY, USA, May 17-20, 2004.
ACM, New York, NY, USA, pages 422-423, ISBN 1-58113-912-8.

- WEB3D2003 Andrea Esuli, Antonio Cisternino, Giuliano Pacini, and Maria Simi
Multimodal presentation of dynamic object scenarios on the web
 Proceeding of the Eighth International Conference on 3D Web Technology, Web3D 2003, Saint Malo, France, March 9-12, 2003
ACM, New York, NY, USA, pages 147-153, ISBN 1-58113-644-7.
- AH2002 Andrea Esuli, Antonio Cisternino, Giuliano Pacini and Maria Simi
Adaptive Real Time Comment Generation for Sail Racing Scenarios
 Adaptive Hypermedia and Adaptive Web-Based Systems, Second International Conference, AH 2002, Malaga, Spain, May 29-31, 2002.
Lecture Notes in Computer Science, n. 2347, Springer Berlin/Heidelberg, DE, pages 392-396, ISBN 978-3-540-43737-6.
- **International workshops**
- SEMEVAL2016 Andrea Esuli
ISTI-CNR at SemEval-2016 Task 4: Quantification on an Ordinal Scale
 Proceedings of the 10th International Workshop on Semantic Evaluation, SemEval@NAACL-HLT 2016, San Diego, CA, USA, June 16-17, 2016.
The Association for Computational Linguistics, East Stroudsburg, PA, USA, pages 92-95, ISBN 978-1-941643-95-2.
- NEUIR2016 Fabio Carrara, Andrea Esuli, Tiziano Fagni, Fabrizio Falchi, Alejandro Moreo Fernández
Picture It In Your Mind: Generating High Level Visual Representations From Textual Descriptions
 The SIGIR 2016 Workshop on Neural Information Retrieval, Pisa, Italy, July 21, 2016.
- SNAST2016 Mauro Coletto, Andrea Esuli, Claudio Lucchese, Cristina Ioana Muntean, Franco Maria Nardini, Raffaele Perego, and Chiara Renso
Sentiment-enhanced multidimensional analysis of online social networks: Perception of the mediterranean refugees crisis
 SNAST 16: Workshop on Social Network Analysis Surveillance Technologies, August 18, 2016.
- SEMEVAL2010 Andrea Esuli, Diego Marcheggiani and Fabrizio Sebastiani
ISTI@SemEval-2 Task #8: Boosting-Based Multiway Relation Classification
 Proceedings of the 5th International Workshop on Semantic Evaluation (SEMEVAL10), Uppsala, SE, 2010.
The Association for Computational Linguistics, East Stroudsburg, PA, USA, pages 218-221, ISBN 978-1-932432-70-1.
- VLDL2009 Paolo Bolettieri, Andrea Esuli, Fabrizio Falchi, Claudio Lucchese, Raffaele Perego, Fausto Rabitti
Enabling Content-Based Image Retrieval in Very Large Digital Libraries
 Second Workshop on Very Large Digital Libraries, VLDL 2009, Corfu, Greece, October 2, 2009.
DELOS: an Association for Digital Libraries, Pisa, Italy, pages 43-50, ISBN 978-888850685-2.
- LSDSIR2009 Andrea Esuli
PP-Index: Using Permutation Prefixes for Efficient and Scalable Approximate Similarity Search
 Proceedings of the 7th Workshop on Large-Scale Distributed Systems for Information Retrieval co-located with ACM SIGIR 2009, LSDS-IR 2009, Boston, USA, July 23, 2009.
CEUR-WS, Vol-480, pages 17-24, ISSN 1613-0073.
- SISAP2009 Andrea Esuli
MiPai: Using the PP-Index to Build an Efficient and Scalable Similarity Search System
 Proceedings of the 2nd International Workshop on Similarity Search and Applications, SISAP 2009, Prague, Czech Republic, August 29-30, 2009.

IEEE Computer Society, Los Alamitos, CA, USA, pages 146-148, ISBN 978-0-7695-3765-8.

- **National workshops**

- IIR2016 Alejandro Moreo Fernández, Andrea Esuli, Fabrizio Sebastiani
Transductive Distributional Correspondence Indexing for Cross-Domain Topic Classification
Proceedings of the 7nd Italian Information Retrieval Workshop (IIR16), Venice, IT, 2016.
CEUR-WS, Vol-1653, ISSN 1613-0073.
- IIR2015a Giacomo Berardi, Andrea Esuli, Diego Marcheggiani
Word Embeddings Go to Italy: a Comparison of Models and Training Datasets
Proceedings of the 6nd Italian Information Retrieval Workshop (IIR15), Cagliari, IT, 2015.
CEUR-WS, Vol-1404, ISSN 1613-0073.
- IIR2015b Andrea Esuli, Tiziano Fagni
ProcessFast, a Java Framework for Development of Concurrent and Distributed Applications
Proceedings of the 6nd Italian Information Retrieval Workshop (IIR15), Cagliari, IT, 2015.
CEUR-WS, Vol-1404, ISSN 1613-0073.
- IIR2011 Giacomo Berardi, Andrea Esuli, Fabrizio Sebastiani and Fabrizio Silvestri
Blog Distillation via Sentiment-Sensitive Link Analysis
Proceedings of the 2nd Italian Information Retrieval Workshop (IIR11), Milano, IT, 2011.
CEUR-WS, Vol-704, pages 24-35, ISSN 1613-0073.
- IIR2011b Stefano Baccianella, Andrea Esuli and Fabrizio Sebastiani
Using Micro-Documents for Feature Selection: The Case of Ordinal Text Classification
Proceedings of the 2nd Italian Information Retrieval Workshop (IIR11), Milano, IT, 2011.
CEUR-WS, Vol-704, pages 16-19, ISSN 1613-0073.
- SEBD2010 Andrea Esuli
PP-Index: Using Permutation Prefixes for Efficient and Scalable Similarity Search
Proceedings of the Eighteenth Italian Symposium on Advanced Database Systems (SEBD 2010), Rimini, IT, 2010.
Esculapio Editore, Bologna, Italy, pages 318-325, ISBN 978-88-7488-369-1.
- IIR2010 Andrea Esuli, Diego Marcheggiani, Fabrizio Sebastiani
Sentence-Based Active Learning Strategies for Information Extraction
Proceedings of the First Italian Information Retrieval Workshop, Padova, IT, January 27-28, 2010.
CEUR-WS, Vol-560, pages 41-45, ISSN 1613-0073.
- IIR2010b Stefano Baccianella, Andrea Esuli, Fabrizio Sebastiani
Selecting Features for Ordinal Text Classification
Proceedings of the First Italian Information Retrieval Workshop, Padova, IT, January 27-28, 2010.
CEUR-WS, Vol-560, pages 13-14, ISSN 1613-0073.

- **Books**

- VDM2010 Andrea Esuli
Automatic Generation of Lexical resource for Opinion Mining
VDM Verlag, Saarbrücken, Germany, ISBN 978-3-8364-7333-0.

- **Magazines and other publications**

- ERCIM2015 Andrea Esuli, and Fabrizio Sebastiani
Optimizing text Quantifiers for Multivariate Loss functions
ERCIM news, 100 Research and Innovation, 2015, pages 49, ISSN 0926-4981.
- ERCIM2013 Giacomo Berardi, Andrea Esuli, and Fabrizio Sebastiani
Utility-Theoretic Ranking for Semi-Automated Text Classification
ERCIM news, 92 Research and Innovation, 2013, pages 52-53, ISSN 0926-4981.
- ERCIM2010 Andrea Esuli, Diego Marcheggiani and Fabrizio Sebastiani
Extracting Information from Free-text Mammography Reports
ERCIM News, 82 R&D and Technology Transfer, 2012, pages 80-81, ISSN 0926-4981.
- ERCIM2009 Stefano Baccianella, Andrea Esuli and Fabrizio Sebastiani
Multi-Faceted Rating of Product Reviews
ERCIM News, 77 - Future Internet Technology, 2009, pages 60-61, ISSN 0926-4981.
- CORR2009 Paolo Bolettieri, Andrea Esuli, Fabrizio Falchi, Claudio Lucchese, Raffaele Perego, Tommaso Piccioli, Fausto Rabitti
CoPhIR: a Test Collection for Content-Based Image Retrieval
CoRR (Computing Research Repository), abs/0905.4627, arXiv, Cornell University Library, 15 pages, 2009.
- SIGIRFOR2008 Andrea Esuli
Automatic generation of lexical resources for opinion mining: models, algorithms and applications
SIGIR Forum, 42(2), 2008.
ACM, New York, NY, USA, pages 105-106, ISSN 0163-5840.

- **Selected Technical Reports**

- cnr.isti/2013-TR-015 Andrea Esuli
The User Feedback on SentiWordNet
ISTI - CNR Technical report, 2013-TR-015, arXiv:1306.1343, 2013.

- **PhD Thesis**

- PhD2008 Andrea Esuli
Automatic Generation of Lexical Resources for Opinion Mining: Models, Algorithms and Applications
PhD Thesis (Information Engineering), PhD School “Leonardo da Vinci”, 2008.
Università di Pisa, URN etd.adm.unipi.it/t/etd-04042008-163914/.