

Francesco Osborne's Curriculum

Personal Data

Francesco Osborne

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Current Position

I am Research Fellow at the Knowledge Media Institute of the Open University in Milton Keynes, UK, where I lead the SKM³ team. I was previously Research Associate at the same university. My research focuses on Semantic Web, Research Analytics, Data Mining, and Semantic Publishing. I am the author of more than fifty peer-reviewed publications in these fields.

Over the past three years, I led a team of researchers working on producing innovative approaches leveraging large-scale data mining, semantic technologies, machine learning and visual analytics for making sense of scholarly data and forecast research dynamics. To this end, I regularly collaborate with major international publishers (Springer Nature, Elsevier) and I organize workshops on these topics at the Word Wide Web Conference and the Extended Semantic Web Conference.

Previous Positions

2015-2017, Research Associate at the Knowledge Media Institute of the Open University in Milton Keynes, UK

2013-2014, Research Assistant at the Knowledge Media Institute of the Open University in Milton Keynes, UK

Education

February 2015 **PhD** in Computer Science from the University of Torino, Italy.
Dissertation Topic: *Propagating User Interests In Ontology-Based User Models.*

July 2010 **Master Degree in ICT** at the University of Torino, with honours.

Teaching Activities

2010-2013 Teaching HTML and Digital Literacy at the Faculty of Letters and Philosophy, University of Torino.

2006-2008 Teaching Video Journalism at the Faculty of Letters and Philosophy, University of Torino.

Trainee Supervisions: Supervised several students achieving training periods, from several educational levels.

PhD Supervisions at KMi:

Co-supervised the PhD student Angelo Salatino (2015-now).

External examiner of the PhD student Dario De Nart (University of Udine, Italy, 2014-2017).

Research Projects

Supporting Editorial Activities at Springer Nature (2016-2019) – Co-PI and Technical Director. The project aims at fostering Springer Nature editorial activities by supporting them with a variety of smart solutions leveraging artificial intelligence, data mining, and semantic technologies. I led the research and development team in the creation of an array of approaches for i) classifying proceedings and other editorial products, ii) taking informed decisions about their marketing strategy, and iii) improve their internal classification. The project generated over £115K and produced two applications currently adopted by SN editors: the Smart Topic Miner, which helps editors to associate scholarly metadata to books; and the Smart Book Recommender, which assists editors in deciding which editorial products should be marketed in a specific venue.

MK:Smart (2014-2017) – Member. MK:Smart is a large collaborative initiative led by The Open University for developing novel solutions to support economic growth in Milton Keynes. I contributed to the Water Package by supervising the development of Garden Monitor, a mobile app for reducing water wastage related to gardening activities.

Rexplore (2012-2016) - Technical Director. The Rexplore project is developing innovative services for exploring and making sense of scholarly data, using large-scale data mining, machine learning and semantic technologies. I lead the research and development activities of the team working on the project. The project generated over £400K, received major grants by Springer Nature and Elsevier, the top two international academic publishers, and developed an array of novel solutions for analysing the research landscape.

PIEMONTE (2010-2013) – Member. The PIEMONTE project aimed to exploit smart-things for enhancing the interaction between people and cultural heritage. In the context of this project, I created OBUM, a novel recommender system which exploits ontology-based user models.

Supervision/Line Management Duties

Since 2013, I have supervised/line managed ten students/researchers/developers:

- Salvatore Zagaria (Visiting Student, March 2018 – July 2018).
- Thiviyan Thanapalasingam (Research Assistant, June 2017 - now).
- Angelo Salatino (PhD Student, November 2015 - now).
- Patrick Wang (Research Associate, October 2016 – July 2017).
- Carlo Allocca (Research Associate, October 2016 – April 2017).
- Helene de Ribaupierre (Research Associate, June 2015 - December 2016).
- Aswin Sundaram (Developer, November 2016 - December 2016).
- Giorgio Basile (Research Assistant, September 2015 - June 2016).
- Catia Prandi (Visiting Student, May 2015 - September 2015).
- Giuseppe Scavo (Visiting Student, August 2013 - March 2014).

Developments

Smart Book Recommender (http://rexplore.kmi.open.ac.uk/SBR_demo): A semantic application designed to support the Springer Nature editorial team in promoting their publications at CS venues. It takes as input the proceedings of a conference and suggests books, journals, and other conference proceedings which are likely to be relevant to the attendees of the conference in question.

Smart Topic Miner (http://rexplore.kmi.open.ac.uk/STM_demo): A tool which uses semantic web technologies to classify scholarly publications on the basis of a very large automatically generated ontology of research areas. It was developed to support the Springer Nature Computer Science editorial team in classifying proceedings.

Klink-2 (<http://skm.kmi.open.ac.uk/klink-2>): An application which takes as input large amounts of scholarly metadata and automatically generates an OWL ontology containing all the research areas mined from the input data and their semantic relationships.

Rexplore (<http://skm.kmi.open.ac.uk/rexplore>): A system that provides an innovative environment for analysing the research landscape and the performance of scientists, universities and scientific communities.

Garden Monitor App (<http://www.mksmart.org/gardenmonitor/>): A mobile application that uses machine learning techniques for generating a customized calendar advising users on how to water their garden in the following ten days.

OBUM: A tool for propagating user interest in ontology-based user models and proposing content-based recommendations.

CS-UDD: A system for discovering new attributes of a user by using the large amounts of public data present on Social Networks.

Technical Skills and Competences

- Software Engineering: Object Oriented Software Design, Software Development Project Management, Software Design Patterns, UML.
- Programming, markup, and script languages: Python, Java, Javascript, PHP Unix shell scripts, Latex, XML, HTML.
- Machine Learning: TensorFlow, scikit-learn.
- Semantic Web Technologies: RDF, OWL.
- Database technologies: MySQL, PostgreSQL, NoSQL.
- Operating Systems: Unix/Linux, Mac OS X, Microsoft Windows.

Awards

- Best Paper Award at SAVE-SD 2018.
- 1st prize at the Semantic Publishing Challenge at the 2014 European Semantic Web Conference.
- Finalist for the best paper award at ESWC 2014 and ICIDS 2011.

Academic Activities

- **Co-chair of:**
 - Doctoral consortium at EKAW 2018.
 - Scientometrics Workshop (Scientometrics 2017 at ESWC).
 - “Semantics, Analytics, Visualisation: Enhancing Scholarly Dissemination” Workshop (SAVE-SD 2015-2018 at WWW).
- **“Invited Professor”** at Paris 13 University (27/07/18-7/08/18).
- **Editor of:**
 - González-Beltrán, A., Osborne, F. and Peroni, S. (2017) Semantics, Analytics, Visualization. Enhancing Scholarly Data: Second International Workshop, SAVE-SD 2016, Montreal, QC, Canada, April 11, 2016, Revised Selected Papers (Vol. 9792). Springer Nature.
- **In the program committees of:** WOSP 2014, WLT 2014, WOSP 2015, BigScholar 2015, VOILA 2015, BigScholar 2016, WOSP 2016, ISWC P&D 2016, VOILA 2016, EKAW 2016, Drift-a-LOD 2016, SWM 2017, BigScholar 2017, Special issue of the Journal of Web Semantics on the topic of “Visualization and Interaction for Ontologies and Linked Data”, VOILA 2017, WWW 2017, WOSP 2017, ESWC 2017, ISWC 2017, K-CAP 2017, QEKGraph 2017, Drift-a-LOD'18, VOILA 2018, WWW 2018, ESWC 2018, ISWC 2018, EKAW 2018, BigScholar 2018, TheWebConf 2019.
- **Member of:** Organisation for Economic Co-operation and Development (OECD) expert advisory group.
- **Reviewer for:** International Journal of Human-Computer Studies, Sensors, UMAP 2013, ISWC 2014, K-CAP 2015, VOILA 2015, PRIVON 2015, PRIVON2015, STAIRS 2016, ISWC 2016, Data Science, Journal of Web Semantics.
- **Invited talks:**

- “Explore large-scale Research Data with Semantic Technologies” at BigScholar 2018. KDD 2018, London, UK.
- “The Computer Science Ontology” at Springer Nature Hackday 2018. Berlin, Germany.
- “Understanding Research with Semantic Technologies” at Workshop on Semantic analysis for innovation policy (OECD) 2018. Paris, France.
- “Research 3.0: integrating knowledge graphs in the research process”, keynote at Workshop on Extracting and Modelling Scientific Knowledge from Texts. IC 2017, Caen, France
- “Two roads to Semantic Publishing” at Workshop on Semantic Publishing. FORCE 2016, Portland, Oregon.

Languages

Italian: Mother tongue.

English: Fluent. (I have lived in UK since 2013)

Selected Publications

International Journals

1. Kirrane, S., Builtelaar, P., Fernandez, J.D., Motta, E., Osborne, F., Polleres, A., Robin, C. (2018) 10 years of Semantic Web Trends. Submitted to the Semantic Web Journal.
2. Osborne, F., Lago, P., Muccini, H., Motta, E. (2018) Reducing the Effort for Systematic Reviews in Software Engineering. Submitted to Empirical Software Engineering Journal.
3. Peroni, S., Osborne, F., Di Iorio, A., Nuzzolese, A.G., Poggi, F., Vitali, F. and Motta, E. (2017) Research Articles in Simplified HTML: a Web-first format for HTML-based scholarly articles. PeerJ Computer Science.
4. Salatino, A.A., Osborne, F. and Motta, E. (2017) How are Topics born? Understanding the Research Dynamics preceding the Emergence of new Areas. PeerJ Computer Science.
5. Likavec, S., Osborne, F. and Cena, F. (2016) Property-based semantic similarity and relatedness for improving recommendation accuracy and diversity. International Journal on Semantic Web and Information Systems (IJSWIS), 11, 4, IGI Global.
6. Carmagnola, F., Osborne, F. and Torre, I. (2014) Escaping the Big Brother: An empirical study on factors influencing identification and information leakage on the Web. Journal of Information Science, 40(2), pp.180-197, SAGE.
7. Carmagnola, F., Osborne, F. and Torre, I. (2014) User data discovery and aggregation: The CS-UDD algorithm. Information Sciences, Elsevier.
8. Osborne, F. and Motta, E. (2013) Exploring Research Trends with Rexplore. D-Lib Magazine 19(9/10).

9. Cena, F., Likavec, S. and Osborne, F. (2013) Anisotropic propagation of user interests in ontology-based user models. *Information Sciences*, 250, pp.40-60., Elsevier.

International Conferences

10. Salatino, A.A., Thanapalasingam, T., Mannocci, A., Osborne, F. and Motta, E. (2018) The Computer Science Ontology: A Large-Scale Taxonomy of Research Areas, *International Semantic Web Conference 2018*, Monterey, CA (USA).
11. Thanapalasingam, T., Osborne, F., Birukou, A., and Motta, E. (2018) Ontology-Based Recommendation of Editorial Products, *International Semantic Web Conference 2018*, Monterey, CA (USA).
12. Osborne, F. and Motta, E. (2018) Pragmatic Ontology Evolution: Reconciling User Requirements and Application Performance, *International Semantic Web Conference 2018*, Monterey, CA (USA).
13. Salatino, A., Osborne, F. and Motta, E. (2018) AUGUR: Forecasting the Emergence of New Research Topics. *ACM/IEEE Joint Conference on Digital Libraries 2018*, Fort Worth, Texas, USA.
14. Wolfram, N., Lago, P. and Osborne, F. (2017) Sustainability in Software Engineering. *SustainIT 2017*. Funchal, Portugal.
15. Osborne, F., Mannocci, A. and Motta, E. (2017) Forecasting the Spreading of Technologies in Research Communities. *K-CAP 2016*, Austin, Texas, USA.
16. Osborne, F., Salatino, A., Birukou, A., Thanapalasingam, T., and Motta, E. (2017) Supporting Springer Nature Editors by means of Semantic Technologies. *International Semantic Web Conference 2017*, Industry Track. Vienna, Austria.
17. Cano-Basave, A. E., Osborne, F. and Salatino, A.A. (2016) Ontology Forecasting in Scientific Literature: Semantic Concepts Prediction based on Innovation-Adoption Priors. *EKAUW 2016*, Bologna, Italy
18. Osborne, F., Ribaupierre, H., and Motta, E. (2016) TechMiner: Extracting Technologies from Academic Publications. *EKAUW 2016*, Bologna, Italy
19. Osborne, F., Salatino, A., Birukou, A. and Motta, E. (2016) Automatic Classification of Springer Nature Proceedings with Smart Topic Miner. *International Semantic Web Conference 2016*, Kobe, Japan.
20. Osborne, F. and Motta, E. (2015) Klink-2: Integrating Multiple Web Sources to Generate Semantic Topic Networks. *International Semantic Web Conference 2015*, Bethlehem, Pennsylvania, USA.
21. Osborne, F., Scavo, G. and Motta, E. (2014) Identifying diachronic topic-based research communities by clustering shared research trajectories. *Extended Semantic Web Conference 2014*, Crete, Greece.
22. Osborne, F. and Motta, E. (2014) Understanding research dynamics. *Extended Semantic Web Conference 2014*, Crete, Greece.
23. Osborne, F. and Motta, E. (2014) Rexplore: Unveiling the Dynamics of Scholarly Data. *Digital Library 2014*, London, UK.
24. Osborne, F. and Motta, E. (2014) Inferring Semantic Relations by User Feedback. *EKAUW 2014*, Linköping, Sweden.
25. Osborne, F., Scavo, G. and Motta, E. (2014) A Hybrid Semantic Approach to Building Dynamic Maps of Research Communities. *EKAUW 2014*, Linköping, Sweden.

26. Chiabrande, E., Furnari, R., Likavec, S., Osborne, F., Picardi, C. and Dupré, D. (2014) TellEat: Sharing Experiences on the Move. HCI International 2014, Heraklion, Crete, Greece.
27. Osborne, F., Motta, E. and Mulholland, P. (2013) Exploring Scholarly Data with Rexplore. International Semantic Web Conference, Sydney, Australia
28. Osborne, F., Cena, F. and Likavec, S. (2013) Granular semantic user similarity in the presence of sparse data. AI*IA 2013, Turin, Italy.
29. Osborne, F. (2013) A POV-based user model: From learning preferences to learning personal ontologies. International Conference on User Modeling, Adaptation, and Personalization 2013, Rome, Italy.
30. Osborne, F. and Motta, E. (2012) Mining Semantic Relations between Research Areas. International Semantic Web Conference, Boston, MA, USA.
31. Cena, F., Likavec, S. and Osborne, F. (2012) Property-based interest propagation in ontology-based user model. International Conference on User Modeling, Adaptation, and Personalization 2012, Montreal, Canada.
32. Osborne, F. (2011) A new approach to social behavior simulation: the Mask Model. International Conference on Interactive Digital Storytelling 2011, Vancouver, Canada.
33. Cena, F., Likavec, S. and Osborne, F. (2011) Propagating user interests in ontology-based user model. AI*IA 2011, Palermo, Italy.
34. Carmagnola, F., Osborne, F. and Torre, I. (2009) Cross-Systems Identification of Users in the Social Web. 8th IADIS International Conference WWW/INTERNET, Rome, Italy.

Book Chapters and Thesis

35. Osborne, F. (2015) Propagating User Interests In Ontology-Based User Models. PhD Thesis.
36. Carmagnola, F., Osborne, F. and Torre, I. (2013) Retrieval of Personal Public Data on Social Networks: The Risks for Privacy. Social Network Engineering for Secure Web Data and Services (pp. 137-160). IGI Global

Edited Books

37. Gonzalez-Beltran, A., Osborne, F. and Peroni, S. (eds.) (2017) Semantics, Analytics, Visualization. Enhancing Scholarly Data: Second International Workshop, SAVE-SD 2016, Montreal, QC, Canada, April 11, 2016, Revised Selected Papers. Semantics, Analytics, Visualization. Enhancing Scholarly Data. eds. Springer Nature.

International Workshops

38. Mannocci, A., Osborne, F., and Motta, E. (2018) Geographical trends in research: a preliminary analysis on authors' affiliations. Workshop: SAVE-SD 2018 at The Web Conference, Lyon, France.
39. Mannocci, A., Salatino, A., Osborne, F., and Motta, E. (2017) 2100 AI: Reflections on the mechanisation of scientific discover. Workshop: Re-coding Black Mirror at The 16th International Semantic Web Conference (ISWC '17), Wien.
40. Osborne, F., Peroni, S. and Motta, E. (2014) Clustering Citation Distributions for Semantic Categorization and Citation Prediction. LISC 2014 at International Semantic Web Conference 2014, Riva Del Garda, Italy.

41. Cena, F., Chiabrando, E., Crevola, A., Deplano, M., Gena, C. and Osborne, F. (2013) A Proposal for an Open Local Movie Recommender. UMAP Workshops, Rome, Italy.
42. Osborne, F. (2011) The Mask Model: a new approach to NPC behavior simulation. PhD seminar Worlds, Stories, and Game, Copenhagen, Denmark.
43. Carmagnola, F., Osborne, F. and Torre, I. (2010) User data distributed on the social web: how to identify users on different social systems and collecting data about them. HetRec 2010 - International Workshop on Information Heterogeneity and Fusion in Recommender Systems, Barcellona, Spain.

Posters and Demos

44. Salatino, A.A., Thanapalasingam, T., Mannocci, A., Osborne, F. and Motta, E. (2018) Classifying Research Papers with the Computer Science Ontology, International Semantic Web Conference 2018, Poster Track. Monterey, CA (USA).
45. Thanapalasingam, T., Osborne, F., Birukou, A., and Motta, E. (2018) The Smart Book Recommender: An Ontology-Driven Application for Recommending Editorial Products, International Semantic Web Conference 2018, Poster Track. Monterey, CA (USA).
46. Osborne, F., Birukou, A., Thanapalasingam, T. , and Motta, E. (2017) Smart Book Recommender: A Semantic Recommendation Engine for Editorial Products. International Semantic Web Conference 2017, Poster Track. Vienna, Austria.
47. Osborne, F., Mannocci, A., and Motta, E. (2017) Forecasting Technology Migrations with the Technology- Topic Framework. International Semantic Web Conference 2017, Poster Track. Vienna, Austria.
48. Gonzalez-Beltran, Alejandra, Francesco Osborne, Silvio Peroni, and Sahar Vahdati. (2017) SAVE-SD 2017: Third Workshop on Semantics, Analytics and Visualisation: Enhancing Scholarly Data. In Proceedings of the 26th International Conference on World Wide Web Companion, pp. 1681-1682. International World Wide Web Conferences Steering Committee, 2017.
49. Ribaupierre, H., Osborne, F. and Motta, E. (2016) Combining NLP and semantics for mining software technologies from research publications. Poster at World Wide Web 2016, Montreal, Canada.
50. Osborne, F., Salatino, A., Birukou, A. and Motta, E. (2016) Smart Topic Miner: Supporting Springer Nature Editors with Semantic Web Technologies. Poster at International Semantic Web Conference 2016, Kobe, Japan.
51. Gonzalez-Beltran, Alejandra, Francesco Osborne, and Silvio Peroni. (2016) SAVE-SD 2016: Second Workshop on Semantics, Analytics and Visualisation: Enhancing Scholarly Data. (2016) In Proceedings of the 25th International Conference Companion on World Wide Web, pp. 1043-1044. International World Wide Web Conferences Steering Committee.
52. Iorio, A., Gonzalez-Beltran, A., Osborne, F., Peroni, S., Poggi, F. and Vitali, F. (2016) It ROCS! The RASH Online Conversion Service. Demo at World Wide Web 2016, Montreal, Canada.
53. Iorio, A., Nuzzolese, A., Osborne, F., Peroni, S., Poggi, F., Smith, M., Vitali, F. and Zhao, J. (2015) The RASH Framework: enabling HTML+RDF submissions in

scholarly venues. Poster at International Semantic Web Conference 2015, Bethlehem, Pennsylvania.

54. Osborne, F. and Ruggeri, A. (2013) A prismatic cognitive layout for adapting ontologies. Poster at International Conference on User Modeling, Adaptation, and Personalization 2013, Rome, Italy.
55. Motta, E. and Osborne, F. (2012) Making Sense of Research with Rexplore. Demo at International Semantic Web Conference, Boston, MA, USA.