

## Marian-Andrei RIZOIU

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# CURRICULUM VITAE

## Employment history

- 03/2016 – current **Research Fellow, College of Eng. and Comp. Science, Australian National University.**  
*Research:* information diffusion models, online popularity prediction models, stochastic point processes, machine learning and social media analysis.  
*Teaching:* Document Analysis, Advanced Databases and Data Mining (Bachelors/Masters).  
*Leadership:* course convenor for the Document Analysis course.  
*Supervision:* 4 PhD students (2 as main supervisor), 3 Masters/Honours students.
- 2014 – 2016 **Research Scientist, Optimisation Research Group, NICTA Canberra, Australia.**  
*Research:* online privacy, big social data analytics, data mining.  
*Teaching:* Social Media Analysis (Bachelors/Masters) at the ANU.  
*Leadership:* assist with grant proposals writing.  
*Supervision:* 1 PhD student, 1 Masters/Honours student.
- 2013 – 2014 **Postdoctoral Fellow, ERIC laboratory, Lumière University Lyon, France.**  
*Research:* ontology construction from text, knowledge graphs evolution for brand management.  
*Teaching:* Machine Learning (Masters), Software Development Methodologies (Masters), Data Mining (Bachelors)  
*Leadership:* developed the Machine Learning course.
- 2009 – 2013 **Adj. Assistant Professor, Dept. of Computer Science, Lumière University Lyon, France.**  
*Teaching (Bachelors):* Object Oriented Programming, Unix Operating Systems, Calculus software.  
*Supervision:* 4 Honours thesis, 9 industrial internships.  
*Leadership:* PhD student representative, course convenor for Calculus software.
- summer 2013 **Research intern, Machine Learning group, NICTA Sydney, Australia.**

## Education background

- 2009 – 2013 **PhD in Computer Science**, ERIC laboratory, Lumière University Lyon, France.  
(June 24<sup>th</sup> 2013) “Semi-supervised structuring of complex data”, supervision S. Lallich and J. Velcin.
- 2008 – 2009 **Masters Degree in Data Mining and Knowledge Engineering**,  
(double diploma) Polytechnic School, Nantes University, France.
- 2004 – 2009 **Engineer Degree in Systems and Computer Engineering**  
School of Computer Science, Polytechnic University of Bucharest, Romania.

## Competences, activities, services and awards

- Languages** **English** (professional, IELTS 8.5/9), **French** (professional), **Romanian** (native).
- Teaching & supervision**
- 570+ hours of teaching experience at all levels in **Software Engineering, Data Science and Machine Learning** (full teaching experience at <http://www.rizoiu.eu/documents/teaching.pdf>)
  - **my current research group:** 4 PhD students (2 as main supervisor), 3 masters/Honours, 2 RAs
- Technical skills**
- big data mining and analysis, machine learning, natural language processing, online social media analysis, statistical analysis, industrial project collaboration
- Computer languages**
- strong skills in R, Matlab, Python, Java;
  - good skills in C/C++, Visual Basic, PL / SQL, Xquery, Xpath, SpartQL, PHP, Bash, Perl.
- Open-source software development**
- **HIPie** describes and predicts the online popularity of Youtube videos (2017) [Kong et al, WWW18].  
Public live version: [www.hipie.ml](http://www.hipie.ml) Demo video: <https://youtu.be/x5xIf4vUScl>  
Source code: <https://github.com/computationalmedia/hipie>
  - **CommentWatcher** analyses online discussion forums and their social networks of users (2014).  
Website: <http://rizoiu.eu/commentwatcher> Demo video: [http://rizoiu.eu/commentwatcher/Video\\_demonstration.html](http://rizoiu.eu/commentwatcher/Video_demonstration.html)

## Honours, awards, prizes and service

- Awards and grants**    **Awards:** ERASMUS International student exchange award (2009), Best student paper award ICTAI, Athens, Greece (2012).  
**Travel Grants:** Rhône-Alpes local government (2013), ECR Travel Awards (2015, 2018).  
**Material Grant:** NVIDIA GPU Grant Program (2015).
- Reviewing**    Journal of Machine Learning Research, Journal IEEE Transactions on Multimedia, Computational Intelligence, Transactions on Information Systems, Journal Transactions on Knowledge Discovery from Data; conferences ICWSM, NIPS, FLAIRS.
- Conference organisation**    **10/2012:** Head of the volunteer team and member in the organisation committee of the international conferences: *Discovery Science 2012* and *Algorithm Learning Technology 2012*, Lyon.  
**09/2011:** Organisation committee member of the international conferences: *Web Intelligence 2011* and *Intelligent Agent Technology 2011*, Lyon.

## Grants

- 2018:    ANU Social Science Cross-College Grants, “**Advanced tools and methods for analysing the role and influence of bots in social media**”, AUD 60K, lead-PI. Did socialbots infiltrate and manipulate discourse on social media during the 2016 U.S. Presidential Debates?
- 2018:    ANU Social Science Cross-College Grants, “**Identify Hate Speech and Predict Mass Atrocities**”, AUD 30K, lead-PI. Can “hate speech” be reliably measured to predict political violence?
- 2015 – present    US Air Force Research Office, “**The Anatomy of Social Media Popularity**”, USD\$555K, co-PI. Develop theoretical models for predicting the popularity of online content.
- 2012 – 2014    French National Research Agency, “**Images on the Web**”, key personnel. Analyse the image life cycles of politicians and companies through online media; apply natural language processing for ontology construction.
- 2012 – 2014    University Lumière Lyon (internal funding), “**Evolution of discourse on nuclear medicine**”, lead-PI. Develop natural language models for specialised discourse in nuclear medicine.
- 2010 – 2011    University Lumière Lyon (internal funding), “**Detecting business owners from mortuary texts**”, lead-PI. Apply image and text processing for 18<sup>th</sup> and 19<sup>th</sup> century business owners identification.
- 2009    Rhône-Alpes local government, “**CONVERSESSION**”, key personnel. Design of a novel platform to analyse online debates; incubation of a start-up company.

## Research interests

- Current**
- Stochastic modelling of online user behaviour, online information diffusion and the rise of online popularity;
  - Computational social science; Explaining and predicting societal phenomena (the influence of online social bots on the democratic process or the adoption of disruptive technologies);
  - User privacy and social media analysis.
- Previous**
- Natural language processing and semantic image representation;
  - Knowledge injection into non-supervised learning algorithms, spatio-temporal learning.

## Recent invited talks

- 06/2018    **User engagement with online video and the unpredictability of online popularity.** Invited talk at Netflix Research, San Jose, California, USA.
- 05/2018    **Scalable influence estimation from online information diffusions.** Research visit at the Max Plank Institute for Software Systems, Kaiserslautern, Germany.
- 02/2018    **#DebateNight: The Role and Influence of Socialbots on Twitter During the 1st U.S. Presidential Debate.** Invited seminar, University of Sydney, Australia.
- 06/2017    **Hawkes Intensity Processes for Social Media Popularity.** University of Sydney, Australia.
- 03/2016    **Evolution of Privacy Loss in Wikipedia.** Invited talk, March session of the Monthly Wikimedia Research Showcase, San Francisco, USA.

## Selected recent publications

**Publications summary:** My 22 cited publications have 155 citations, H-index 7 (source: *Google Scholar 05/2018*)<sup>1</sup>. Full publication list at <http://www.rizoiu.eu/#publications>

- [1] **Rizoiu, M.-A.**, Mishra, S., Kong, Q., Carman, M., & Xie, L. (2018). *SIR-Hawkes: Linking Epidemic Models and Hawkes Processes to Model Diffusions in Finite Populations*. In: Proceedings of International Conference on World Wide Web (**WWW '18**), Lyon, France, pp. 1–9, 2018. (**CoRE Rank: A\***, **a.r.: 14%**, **h5: 77**)
- [2] **Rizoiu, M.-A.**, Graham, T., Zhang, R., Zhang, Y., Ackland, R. J., & Xie, L. *#DebateNight : The Role and Influence of Socialbots on Twitter During the 1st U.S. Presidential Debate*. In International AAAI Conference on Web and Social Media (**ICWSM'18**), pp. 1–10, 2018. (**a.r.: 16%**, **h5: 52**)
- [3] Wu, S., **Rizoiu, M.-A.**, & Xie, L. (2017). *Measuring Video Engagement: An Empirical Study on YouTube*. In Proceedings of the International Conference on Web and Social Media (**ICWSM '18**), pp. 1–9, 2018. (**a.r.: 16%**, **h5: 52**)
- [4] Mishra, S., **Rizoiu, M.-A.**, & Xie, L. *Modeling Popularity in Asynchronous Social Media Streams with Recurrent Neural Networks*. In International AAAI Conference on Weblogs and Social Media (**ICWSM'18**), pp. 1–10, 2018. (**a.r.: 16%**, **h5: 52**)
- [5] Kong, Q., **Rizoiu, M.-A.**, Wu, S., & Xie, L. (2018). *Will This Video Go Viral? Explaining and Predicting the Popularity of Youtube Videos*. In: Proceedings of International Conference on World Wide Web Companion (**WWW '18**), Lyon, France, pp. 1–4, 2018. (**CoRE Rank: A\***, **h5: 77**)
- [6] **Rizoiu, M.-A.**, Lee, Y., Mishra, S., & Xie, L. *A Tutorial on Hawkes Processes for Events in Social Media*. In “Research Frontiers of Multimedia”, S.-F. Chang (Ed.), (2017), pp. 1–26, ACM Books.
- [7] **Rizoiu, M.-A.**, & Xie, L. *Online Popularity under Promotion: Viral Potential, Forecasting, and the Economics of Time*. In: Proceedings of International AAAI Conference on Web and Social Media (**ICWSM '17**), Montreal, Canada, pp. 1–10, 2017. (**a.r.: 14%**, **h5: 59**)
- [8] **Rizoiu, M.-A.**, Xie, L., Sanner, S., Cebrian, M., Yu, H., & Van Hentenryck, P., *Expecting to be HIP: Hawkes Intensity Processes for Social Media Popularity*. In: Proceedings of International Conference on World Wide Web (**WWW '17**), Perth, Australia, pp. 735-744, 2017. (**CoRE Rank: A\***, **a.r.: 17%**, **h5: 74**)
- [9] Mishra, S., **Rizoiu, M.-A.**, & Xie, L., *Feature Driven and Point Process Approaches for Popularity Prediction*. In: Proceedings of International Conference on Information and Knowledge Management (**CIKM '16**), Indianapolis, USA, p. 1069–1078, 2016. (**CoRE Rank: A**, **a.r.: 17%**, **h5: 42**)
- [10] **Rizoiu, M.-A.**, Xie, L., Caetano, T., & Cebrian, M., *Evolution of Privacy Loss in Wikipedia*. In: Proc. International Conference on Web Search and Data Mining (**WSDM '16**), San Francisco, USA, pp. 215-224, February 2016. (**CoRE Rank: A\***, **a.r.: 18%**, **h5: 58**)
- [11] **Rizoiu, M.-A.**, Velcin, J., Bonnevey, S., & Lallich, S. *ClusPath: A Temporal-driven Clustering to Infer Typical Evolution Paths*. Data Mining and Knowledge Discovery (**DAMI**), 30(5), pp. 1324-1349, (2016). (**ERA Rank: A**, **h5: 33**)
- [12] **Rizoiu, M.-A.**, Velcin, J. & Lallich, S., *Semantic-enriched Visual Vocabulary Construction in a Weakly Supervised Context*. Intelligent Data Analysis (**IDA**), vol. 19(1), pp. 161-185, (2015). (**ERA Rank: B**, **h5: 16**)
- [13] Kim, Y.-M., Velcin, J., Bonnevey, S., & **Rizoiu, M.-A.**, *Temporal Multinomial Mixture for Instance-Oriented Evolutionary Clustering*. In: 37<sup>th</sup> European Conference on Information Retrieval (**ECIR '15**), Vienna, Austria, pp. 593–604, Springer, March 2015. (**CoRE Rank: B**, **a.r.: 23%**, **h5: 25**)
- [14] **Rizoiu, M.-A.**, Velcin, J. & Lallich, S., *How to use Temporal-Driven Constrained Clustering to detect typical evolutions*. International Journal of Artificial Intelligence Tools (**IJAIT**), vol. 23(4), (2014). (**h5: 13**)
- [15] **Rizoiu, M.-A.**, Velcin, J. & Lallich, S., *Unsupervised Feature Construction for Improving Data Representation and Semantics*. Journal of Intelligent Information Systems (**JJIS**), vol. 40(3), pp. 501-527, (2013). (**ERA Rank: C**, **h5: 21**)
- [16] **Rizoiu, M.-A.**, *Semi-Supervised Structuring of Complex Data*. In: Doctoral Consortium of the 23<sup>rd</sup> International Joint Conference On Artificial Intelligence (**IJCAI '13**). Beijing, China. AAAI Press. 2013. (**CoRE Rank: A\***, **h5: 55**)
- [17] **Rizoiu, M.-A.**, Velcin, J. & Lallich, S., *Structuring typical evolutions using Temporal-Driven Constrained Clustering*. In: 24<sup>th</sup> International Conference on Tools with Artificial Intelligence (**ICTAI '12**), Athens, Greece, pp. 610-617, IEEE, November, 2012. **Best Student Paper Award**. (**CoRE Rank: B**, **h5: 17**)
- [18] Musat, C., Velcin J., Trausan-Matu, S., & **Rizoiu M.-A.** *Improving Topic Evaluation Using Conceptual Knowledge*. In: 22<sup>nd</sup> International Joint Conference On Artificial Intelligence (**IJCAI '11**). Barcelona, Spain. pp. 1866-1871, AAAI Press. July, 2011. (**CoRE Rank: A\***, **h5: 55**)
- [19] Musat, C., Velcin J., **Rizoiu M.-A.**, & Trausan-Matu, S. *Improving Topic Models using Conceptual Data*. In: 19<sup>th</sup> International Symposium on Methodologies for Intelligent Systems (**ISMIS '11**). Warsaw, Poland. pp. 133–142. June 2011. (**CoRE Rank: C**, **h5: 11**)
- [20] **Rizoiu, M.-A.** & Velcin, J. *Topic Extraction for Ontology Learning*. In book: “Ontology Learning and Knowledge Discovery Using the Web: Challenges and Recent Advances” (2011), chapter 3, pp. 38-61.
- [21] **Rizoiu, M.-A.**, Velcin, J., & Chauchat, J.-H., *Regrouper les données textuelles et nommer les groupes à l'aide des classes recouvrantes*. In: 10<sup>ème</sup> conférence Extraction et Gestion des Connaissances (**EGC '10**), Hammamet, Tunisia; Vol. E-19, p. 561-572. January, 2010. (**h5: 6**) (in French)
- [22] Musat, C., **Rizoiu M.-A.**, & Trausan-Matu, S., *An Intra and Inter-Topic Evaluation and Cleansing Method*. Romanian Journal of Human-Computer Interaction (**RRIOC**), vol. 3 (2010) pp. 81-96. (in Romanian)

<sup>1</sup> Metrics key. **ERA/CoRE**: Australian Publication Ranking; **a.r.**: acceptance rate for conferences; **h5**: the h5 metric of the venue (source *Google Scholar*).