

## PERSONAL INFORMATION

## Cataldo Musto



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Sex Male | Date of birth 08/10/1982 | Nationality Italian

h-index: 29 total citations: 2470 (source: Google Scholar)

h-index: 23 total citations: 1379 (source: Scopus)

| Enterprise                                       | University   | EPR  |
|--|--|--|
| <input type="checkbox"/> Management Level        | <input type="checkbox"/> Full professor  | <input type="checkbox"/> Research Director and 1st level Technologist /<br>First Researcher and 2nd level Technologist |
| <input type="checkbox"/> Mid-Management Level    | <input type="checkbox"/> Associate Professor   | <input type="checkbox"/> Level III Researcher and Technologist   |
| <input type="checkbox"/> Employee / worker level | <input checked="" type="checkbox"/> Researcher and Technologist of IV, V, VI and VII<br>level / Technical collaborator | <input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII<br>level / Technical collaborator            |

## WORK EXPERIENCE

April 2021 - present

### Assistant Professor (RTD-B)

University of Bari Aldo Moro – Department of Computer Science

- Research topics: recommender systems, knowledge graphs, explainable AI, conversational agents

January 2016 – January 2021

### Assistant Professor (RTD-A)

University of Bari Aldo Moro – Department of Computer Science

- Research topics: recommender systems, user modelling, social media analysis

April 2012 – January 2016

### Research assistant (Assegnista di Ricerca)

University of Bari Aldo Moro – Department of Computer Science

- Research topics: recommender systems, natural language processing

## EDUCATION AND TRAINING

June 2012

### Ph.D in Computer Science

University of Bari Aldo Moro – Department of Computer Science

- Integration of User-Generated Content in Content-based Recommender Systems

April 2008

### M.Sc. in Computer Science

University of Bari Aldo Moro – Department of Computer Science

- 110/110 magna cum laude

## PROJECTS (last five years)

### With leadership roles

- 2020 - 2021 Intelligenza Artificiale per lo Sviluppo Sostenibile (funded by Min. degli Esteri e della Coop. Intern.)
- 2018 - 2019 Contro l'Odio: Tecnologie Informatiche, Percorsi Formativi e Storytelling Partecipativo per Combattere l'Intolleranza (funded by Ministero del Lavoro e delle Politiche Sociali )
- 2016 - 2018 Semantic Holistic User Modeling per l'accesso personalizzato a servizi e contenuti digitali (funded by Regione Puglia)
- 2016 - 2020 Mappa Italiana dell'Intolleranza (non-funded project)

**RESEARCH GRANTS AND SUPERVISION**

- 2022 Supervision of the Research Grant (12 months) on "Methods and Techniques for Explanations supporting Intelligent Systems"
- 2022 Research Grant funded by ACMOS Association (Torino) for "Be-Positive!" finanziato nell'ambito del Topic: "Componente di spiegazione in linguaggio naturale a supporto di un algoritmo per classificazione degli stereotipi"

**COMMUNITY SERVICE (last 5y)**

- Poster and LBR Chair ACM UMAP 2022
- Technical Track Chair i-Cities 2021 - Track "AI & Big Data for Smart Cities"
- Social Chair ACM RecSys 2020
- Student Volunteers Chair ACM RecSys 2019
- Workshop Chair ASONAM 2019
- Publicity Chair EC-Web 2013, ACM UMAP 2017, ACM Hypertext 2019, CLIC-it 2019
- Workshop Organization APEX-UI @IUI 2022, ExUM @UMAP 2022, ExUM @UMAP 2021, PICA @UMAP 2021, KARS @RecSys 2020, XAI.it @AIXIA 2021, XAI.it @AIXIA 2020, ExUM @UMAP 2020, ExHUM @UMAP 2019, KARS @RecSys 2018, HUM@UMAP 2018, THUM @UMAP 2017
- Regular reviewer ACM Hypertext (2017-2018) ACM UMAP (from 2017 to 2022), ACM RecSys (from 2017 to 2022), ACM SAC (from 2017 to 2022), CLIC-it (from 2017 to 2021), CBI (2018-2019), ACM IUI (2017), IJCAI (2021-2022), LREC (from 2018 to 2022), WebConf (2021-2022)

**EDITORIAL ACTIVITY**

- 2020 - Present Editorial Board Member as review editor for the journal *Frontiers in Big Data - Recommender Systems*
- 2020 - Present Editorial Board Member of journal *Electronics - Impact Factor: 2.397 (2020) ; 5-Year Impact Factor: 2.408 (2020) - ISSN: 2079-9292*
- 2019 Guest Editor for the Special Issue "Recommender Systems based on Rich Item Descriptions" of the journal *User Modeling and User-Adapted Interaction (UMUAI)*
- 2017 Editor of the section "Sentiment Analysis and Recommender Systems" of the "Encyclopedia of Social Network Analysis and Mining, second Edition" edited by Springer (editors: Reda Alhajj and Jon Rokne)

**TEACHING**

- 2022 - Present BSc course on "Linguaggi di Programmazione" – Corso di Laurea in Informatica e Tecnologie per la Produzione del Software, Università di Bari Aldo Moro
- 2016 - 2020 BSc course on "Laboratorio di Informatica" – Corso di Laurea in Informatica e Tecnologie per la Produzione del Software, Università di Bari Aldo Moro
- 2020 PhD course on "Information Filtering and Personalization" – Dottorato di Ricerca in Informatica, Università di Bari Aldo Moro
- 2019 PhD course on "Recommender Systems" – Dottorato di Ricerca in Informatica, Università di Bari Aldo Moro

**Ph.D. COMMITTEE**

- 2021 Committee Member of the Master Thesis Exam at University of Bergen (Norway). Candidate: Edis Asotic
- 2020 Committee Member of the Ph.D. Program in Computer and Control Engineering - Politecnico di Torino (XXXII Cycle). Candidate: Enrico Palumbo
- 2019 Committee Member del Ph.D. Program in Computer Science - Università di Torino (XXXI Cycle). Candidate: Mauro Giraudo
- 2017 Committee Member del Ph.D. Program in Computer Science - Università di Torino (XXIX Cycle). Candidate: Federico Sarzotti

## INVITED TALKS

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- 2021 **Panelist NATO CA2X2 Forum 2021** - The 16th NATO CA2X2 (Computer Assisted Analysis, Exercise, Experimentation) Forum, organized by the NATO Modelling and Simulation Centre of Excellence, Online, October 6th 2021. Title: "Infodemic to Support Decision-Making" Talk: "Social Media Analysis for Decision-Making and User Profiling" Panelists: Cataldo Musto, Giuseppe Vizzari, Manlio de Domenico
- 2021 **Invited Talk** workshop "Intelligenza Artificiale per lo Sviluppo Sostenibile", Online June 30th 2021. Title: "L'IA per il monitoraggio dei social media: il Caso della Farnesina e La Mappa Italiana dell'Intolleranza."
- 2020 **Panelist** for Workshop NL4AI - 4th Workshop on Natural Language for Artificial Intelligence, co-located with AIXIA 2020, Evento Online, November 26th 2020. Title: "Natural Language Processing and Explainability of AI systems: an intertwined story" Panelists: Serena Villata, Cataldo Musto, Danilo Croce.
- 2020 **Invited Talk AI Forum 2020 - Intelligenza Artificiale per le Imprese**, Online, November 3rd 2020. Title: "Cataldo Musto. La Mappa dell'Intolleranza: una piattaforma per monitorare l'Hate Speech"
- 2020 **Invited Talk Associazione 'Luca Coscioni'** - XVI Congresso Nazionale 'Fiera delle Libertà', Bari, Italia, October 4th 2019. Title: "G. Semeraro, C. Musto - L'IA per l'empowerment del cittadino"
- 2019 **Invited Talk RecSys Summer School 2019** - ACM Summer School of Recommender Systems, Gothenburg, Sweden, September 13th 2019: Title: "G. Semeraro, M. de Gemmis, P. Lops, C. Musto, F. Narducci - Advances in Content-based Recommender Systems"
- 2019 **Invited Talk AI Forum 2019 - Intelligenza Artificiale per le Imprese**, Milano, Italy, April 12th 2019. Title: "Cataldo Musto. Recommender Systems, descrizione e casi concreti"
- 2018 **Evento "Big Data Tech 2018"**, Milano (MI), Italy, October 25th 2018. Title dell'invited talk: "Cataldo Musto. Social Networks ed Hate Speech – La Mappa Italiana dell'Intolleranza"
- 2017 **Invited Talk RecSys Summer School 2017** - ACM Summer School of Recommender Systems, Bolzano, Italy, August 25th 2017. Title: "G. Semeraro, M. de Gemmis, P. Lops, C. Musto, F. Narducci - Recent Developments of Content-based Recommender Systems"
- 2017 **Invited Talk RecSys-UM Workshop** - 1st International Workshop of Israel Science Foundation on User Modeling and Recommender Systems, Haifa, Israel, July 19<sup>th</sup> 2017. Titolo dell'invited talk: "Cataldo Musto. Recommender Systems based on Linked Open Data"
- 2015 **Invited Talk FinRec 2015** - 1st International Workshop on Personalization and Recommender Systems in Financial Services, Graz, Austria, April 16th 2015. Titolo dell'invited talk: "Cataldo Musto, Giovanni Semeraro. Case-based Recommender Systems for Personalized Finance Advisory"

## FELLOWSHIPS AND AWARDS

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- 2016 **Best Paper Nominee** at the ACM RecSys 2016 conference (10<sup>th</sup> ACM Conference on Recommender Systems). The nominee was obtained with the article ExpLOD: a Framework for Explaining Recommendations Based on the Linked Open Data Cloud.
- 2014 **Winner of the research grant Future in Research**, funded by Regione Puglia. The grant was won with a project proposal entitled: Semantic Holistic User Modeling for Personalized Access to Digital Services and Content
- 2014 **Winner of the Linked Open Data-enabled Recommender Systems Challenge**, organized within the 11a European Semantic Web Conference (ESWC 2014), with the framework described in the paper Content-Based Recommender Systems + DBpedia Knowledge = Semantics-Aware Recommender Systems
- 2013 **Most Inspiring Contribution Award**, obtained during the conference UMAP 2013 (21st International Conference on User Modeling, Adaptation and Personalization) with a paper entitled: Leveraging Encyclopedic Knowledge for Transparent and Serendipitous User Profiles.

## ADDITIONAL INFORMATION

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- 2018 ASN II Fascia – settore 01/B1
- 2017 ASN II Fascia – settore 09/H1

## PUBLICATIONS

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Publications  
best and most relevant  
in the last 10 years

1. C. Musto, M. de Gemmis, P. Lops, and G. Semeraro. **Generating post hoc review-based natural language justifications for recommender systems**. *User Model. User Adapt. Interact.*, 31(3):629–673, 2021
2. C. Musto, P. Lops, M. de Gemmis, and G. Semeraro. **Context-aware graph-based recommendations exploiting personalized pagerank**. *Knowl. Based Syst.*, 216:106806, 2021.
3. C. Musto, F. Narducci, M. Polignano, M. de Gemmis, P. Lops, and G. Semeraro. **Myrrorbot: A digital assistant based on holistic user models for personalized access to online services**. *ACM Trans. Inf. Syst.*, 39(4):46:1–46:34, 2021
4. F. Cena, A. Rapp, C. Musto, and G. Semeraro. **Generating recommendations from multiple data sources: A methodological framework for system design and its application**. *IEEE Access*, 8:183430–183447, 2020
5. C. Musto, M. Polignano, G. Semeraro, M. de Gemmis, and P. Lops. **Myrror: a platform for holistic user modeling**. *User Model. User Adapt. Interact.*, 30(3):477–511, 2020.
6. M. Polignano, F. Narducci, A. Iovine, C. Musto, M. de Gemmis, and G. Semeraro. **Healthassistantbot: A personal health assistant for the italian language**. *IEEE Access*, 8:107479–107497, 2020.
7. V. Lingiardi, N. Carone, G. Semeraro, C. Musto, M. D'Amico, and S. Breina. **Mapping twitter hate speech towards social and sexual minorities: a lexicon-based approach to semantic content analysis**. *Behaviour & Information Technology*, pages 1–11, 2019.
8. C. Musto, F. Narducci, P. Lops, M. de Gemmis, and G. Semeraro. **Linked open data-based explanations for transparent recommender systems**. *Int. Journal Human-Computer Studies*, 121:93–107, 2019.
9. C. Musto, P. Basile, P. Lops, M. de Gemmis, and G. Semeraro. **Introducing linked open data in graph-based recommender systems**. *Information Processing & Management*, 53(2):405–435, 2017.
10. C. Musto, P. Lops, M. de Gemmis, and G. Semeraro. **Semantics-aware recommender systems exploiting linked open data and graph-based features**. *Knowl.-Based Syst.*, 136:1–14, 2017.
11. F. Narducci, C. Musto, M. de Gemmis, P. Lops, and G. Semeraro. **Tv-program retrieval and classification: A comparison of approaches based on machine learning**. *Information Systems Frontiers*, pages 1–15, 2017.
12. F. Narducci, P. Basile, C. Musto, P. Lops, A. Caputo, M. de Gemmis, L. Iaquinta, and G. Semeraro. **Concept-based item representations for a cross-lingual content-based recommendation process**. *Information Sciences*, 374:15–31, 2016
13. M. de Gemmis, P. Lops, G. Semeraro, and C. Musto. **An investigation on the serendipity problem in recommender systems**. *Information Processing and Management*, 51 (5):695–717, 2015.
14. C. Musto, G. Semeraro, M. de Gemmis, and P. Lops. **Crowdpulse: a framework for real-time semantic analysis of social streams**. *Information Systems*, 54:127–146, 2015.
15. C. Musto, G. Semeraro, P. Lops, M. de Gemmis, and G. Lekkas. **Personalized finance advisory through case-based recommender systems and diversification strategies**. *Decision Support Systems*, 77:100–111, 2015.
16. P. Lops, M. de Gemmis, G. Semeraro, C. Musto, and F. Narducci. **Content-based and collaborative techniques for tag recommendation: an empirical evaluation**. *Journal Of Intelligent Information Systems*, 40(1):41–61, 2013. ISSN 0925-9902.
17. C. Musto, A. D. Starke, C. Trattner, A. Rapp, and G. Semeraro. **Exploring the effects of natural language justifications in food recommender systems**. In J. Masthoff, E. Herder, N. Tintarev, and M. Tkalcic, editors, *Proceedings of the 29th ACM Conference on User Modeling, Adaptation and Personalization, UMAP 2021, Utrecht, The Netherlands, June, 21-25, 2021*, pages 147–157. ACM, 2021.
18. M. Polignano, C. Musto, M. de Gemmis, P. Lops, and G. Semeraro. **Together is better: Hybrid recommendations combining graph embeddings and contextualized word representations**. In H. J. C. Pampin, M. A. Larson, M. C. Willemsen, J. A. Konstan, J. J. McAuley, J. Garcia-Gathright, B. Huuink, and E. Oldridge, editors, *RecSys '21: Fifteenth ACM Conference on Recommender Systems, Amsterdam, The Netherlands, 27 September 2021 - 1 October 2021*, pages 187–198. ACM, 2021.
19. C. Musto, C. Trattner, A. Starke, and G. Semeraro. **Towards a knowledge-aware food recommender system exploiting holistic user models**. In T. Kuflik, I. Torre, R. Burke, and C. Gena, editors, *Proceedings of the 28th ACM Conference on User Modeling, Adaptation and Personalization, UMAP 2020, Genoa, Italy, July 12-18, 2020*, pages 333–337. ACM, 2020
20. C. Musto, P. Lops, M. de Gemmis, and G. Semeraro. **Justifying recommendations through aspect-based sentiment analysis of users reviews**. In G. A. Papadopoulos, G. Samaras, S. Weibelzahl, D. Jannach, and O. C. Santos, editors, *Proceedings of the 27th ACM Conference on User Modeling, Adaptation and Personalization, UMAP 2019, Lamaca, Cyprus, June 9-12, 2019*, pages 4–12. ACM, 2019. ISBN 978-1-4503-6021-0.

21. C. Musto, G. Rossiello, M. de Gemmis, P. Lops, and G. Semeraro. **Combining text summarization and aspect-based sentiment analysis of users' reviews to justify recommendations.** In T. Bogers, A. Said, P. Brusilovsky, and D. Tikk, editors, Proceedings of the 13th ACM Conference on Recommender Systems, RecSys 2019, Copenhagen, Denmark, September 16-20, 2019, pages 383–387. ACM, 2019.
22. C. Musto, P. Lops, M. de Gemmis, and G. Semeraro. **Semantics-aware recommender systems exploiting linked open data and graph-based features.** In P. Champin, F. L. Gandon, M. Lalmas, and P. G. Ipeirotis, editors, Companion of the The Web Conference 2018 on The Web Conference 2018, WWW 2018, Lyon, France, April 23-27, 2018, pages 457–460. ACM, 2018.
23. C. Musto, M. de Gemmis, G. Semeraro, and P. Lops. **A multi-criteria recommender system exploiting aspect-based sentiment analysis of users' reviews.** In P. Cremonesi, F. Ricci, S. Berkovsky, and A. Tuzhilin, editors, Proceedings of the Eleventh ACM Conference on Recommender Systems, RecSys 2017, Como, Italy, August 27-31, 2017, pages 321–325. ACM, 2017. ISBN 978-1-4503-4652-8.
24. C. Musto, G. Semeraro, M. de Gemmis, and P. Lops. **Tuning personalized pagerank for semantics-aware recommendations based on linked open data.** In E. Blomqvist, D. Maynard, A. Gangemi, R. Hoekstra, P. Hitzler, and O. Hartig, editors, The Semantic Web - 14th International Conference, ESWC 2017, Portorož, Slovenia, May 28 - June 1, 2017, Proceedings, Part I, volume 10249 of Lecture Notes in Computer Science, pages 169–183. 2017. ISBN 978-3-319-58067-8.
25. A. Suglia, C. Greco, C. Musto, M. de Gemmis, P. Lops, and G. Semeraro. **A deep architecture for content-based recommendations exploiting recurrent neural networks.** In M. Bielikova, E. Herder, F. Cena, and M. C. Desmarais, editors, Proceedings of the 25th Conference on User Modeling, Adaptation and Personalization, UMAP 2017, Bratislava, Slovakia, July 09 - 12, 2017, pages 202–211. ACM, 2017. ISBN 978-1-4503-4635-1.
26. C. Musto, P. Lops, P. Basile, M. de Gemmis, and G. Semeraro. **Semantics-aware graph-based recommender systems exploiting linked open data.** In J. Vassileva, J. Blustein, L. Aroyo, and S. K. D'Mello, editors, Proceedings of the 2016 Conference on User Modeling Adaptation and Personalization, UMAP 2016, Halifax, NS, Canada, July 13 - 17, 2016, pages 229–237. ACM, 2016. ISBN 978-1-4503-4368-8.
27. C. Musto, F. Narducci, P. Lops, M. de Gemmis, and G. Semeraro. **Explod: A framework for explaining recommendations based on the linked open data cloud.** In S. Sen, W. Geyer, J. Freyne, and P. Castells, editors, Proceedings of the 10<sup>th</sup> ACM Conference on Recommender Systems, Boston, MA, USA, September 15-19, 2016, pages 151–154. ACM, 2016. ISBN 978-1-4503-4035-9.
28. C. Musto, G. Semeraro, M. de Gemmis, and P. Lops. **Learning word embeddings from wikipedia for content-based recommender systems.** In N. Ferro, F. Crestani, M. Moens, J. Mothe, F. Silvestri, G. M. D. Nunzio, C. Hauff, and G. Silvello, editors, Advances in Information Retrieval - 38th European Conference on IR Research, ECIR 2016, Padua, Italy, March 20-23, 2016. Proceedings, volume 9626 of Lecture Notes in Computer Science, pages 729–734. Springer, 2016. ISBN 978-3-319-30670-4.