### List of Publications

Michael Cochez

October 11, 2022

A bibtex file with all my work can be found from https://www.cochez.nl/papers/refs.bib

### **Books**

Aidan Hogan, Eva Blomqvist, *Michael Cochez*, Claudia d'Amato, Gerard de Melo, Claudio Gutierrez, Sabrina Kirrane, José Emilio Labra Gayo, Roberto Navigli, Sebastian Neumaier, and others. Knowledge graphs. *Synthesis Lectures on Data, Semantics, and Knowledge*, 12(2):1–257, 2021a. URL https://kgbook.org

# Peer reviewed book chapters, conference and journal papers.

- Bo Xiong, Michael Cochez, Mojtaba Nayyeri, and Steffen Staab. Hyperbolic embedding inference for structured multi-label prediction. In NeurIPS2022, 2022. accepted
- Xu Wang, Frank van Harmelen, Michael Cochez, and Zhisheng Huang. Scientific item recommendation using a citation network. In Gerard Memmi, Baijian Yang, Linghe Kong, Tianwei Zhang, and Meikang Qiu, editors, Knowledge Science, Engineering and Management, pages 469–484, Cham, 2022b. Springer International Publishing. ISBN 978-3-031-10986-7
- 3. Aidan Hogan, Eva Blomqvist, *Michael Cochez*, Claudia D'amato, Gerard De Melo, Claudio Gutierrez, Sabrina Kirrane, José Emilio Labra Gayo, Roberto Navigli, Sebastian Neumaier, and others. Knowledge graphs. *ACM Comput. Surv.*, 54(4), July 2021b. ISSN 0360-0300. doi: 10.1145/3447772. URL https://arxiv.org/abs/2003.02320
- Florian Barthelemy, Michael Cochez, Iraklis Dimitriadis, Naila Karim, Nikolaos Loutas, Ioannis Magnisalis, Lina Molinas Comet, Vassilios Peristeras, and Brecht Wyns. Towards a standard-based open data ecosystem: analysis of dcat-ap use at national and european level. Electronic Government, an International Journal, 18(2):137–180, 2022
- 5. Dimitrios Alivanistos, Max Berrendorf, *Michael Cochez*, and Mikhail Galkin. Query embedding on hyper-relational knowledge graphs. In *International*

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- Md. Rezaul Karim, Jiao Jiao, Till Döhmen, Michael Cochez, Oya Beyan, Dietrich Rebholz-Schuhmann, and Stefan Decker. DeepKneeExplainer: Explainable knee osteoarthritis diagnosis from radiographs and magnetic resonance imaging. IEEE Access, 9:39757–39780, 2021. doi: 10.1109/ ACCESS.2021.3062493
- 7. Arnab Chakrabarti, Abhijeet Das, Michael Cochez, and Christoph Quix. Unsupervised feature selection for efficient exploration of high dimensional data. In Ladjel Bellatreche, Marlon Dumas, Panagiotis Karras, and Raimundas Matulevičius, editors, Advances in Databases and Information Systems, pages 183–197, Cham, 2021. Springer International Publishing. ISBN 978-3-030-82472-3. URL https://www.cochez.nl/papers/feature\_selection\_for\_exploration.pdf
- 8. Erik Arakelyan, Daniel Daza, Pasquale Minervini, and Michael Cochez. Complex query answering with neural link predictors. In International Conference on Learning Representations (ICLR 2021). Openreview, 2021. URL https://openreview.net/forum?id=Mos9F9kDwkz. Oral presentation, spotlight paper
- Daniel Daza, Michael Cochez, and Paul Groth. Inductive entity representations from text via link prediction. In Proceedings of the Web Conference 2021, page 798–808. Association for Computing Machinery, New York, NY, USA, 2021. ISBN 9781450383127. URL https://arxiv.org/abs/2010.03496
- Md. Rezaul Karim, Till Döhmen, Michael Cochez, Oya Beyan, Dietrich Rebholz-Schuhmann, and Stefan Decker. DeepCOVIDExplainer: Explainable COVID-19 diagnosis from chest X-ray images. In 2020 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), pages 1034–1037, 2020b. doi: 10.1109/BIBM49941.2020.9313304. URL https: //arxiv.org/abs/2004.04582
- Aidan Hogan, Eva Blomqvist, Michael Cochez, Claudia D'amato, Gerard De Melo, Claudio Gutierrez, Sabrina Kirrane, José Emilio Labra Gayo, Roberto Navigli, Sebastian Neumaier, and others. Knowledge graphs. ACM Comput. Surv., 54(4), July 2021b. ISSN 0360-0300. doi: 10.1145/3447772. URL https://arxiv.org/abs/2003.02320
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- Ahmed Hallawa, Giovanni Iacca, Cagatay Sariman, Touhidur Rahman, Michael Cochez, and Gerd Ascheid. Morphological evolution for pipe inspection using robot operating system (ROS). Materials and Manufacturing Processes, 35(6):714-724, 2020. doi: 10.1080/10426914.2020.1746335. URL https://doi.org/10.1080/10426914.2020.1746335
- 15. Md Rezaul Karim, Oya Beyan, Achille Zappa, Ivan G Costa, Dietrich Rebholz-Schuhmann, *Michael Cochez*, and Stefan Decker. Deep learning-based clustering approaches for bioinformatics. *Briefings in Bioinformatics*, 02 2020a. ISSN 1477-4054. doi: 10.1093/bib/bbz170. URL https://doi.org/10.1093/bib/bbz170. bbz170
- 16. Ruijie Wang, Meng Wang, Jun Liu, Michael Cochez, and Stefan Decker. Structured query construction via knowledge graph embedding. Knowledge and Information Systems, 62(5):1819–1846, May 2020. ISSN 0219-3116. doi: 10.1007/s10115-019-01401-x. URL https://doi.org/10.1007/s10115-019-01401-x
- Md. Rezaul Karim, Michael Cochez, Joao Bosco Jares, Mamtaz Uddin, Oya Beyan, and Stefan Decker. Drug-drug interaction prediction based on knowledge graph embeddings and convolutional-LSTM network. In Proceedings of the 10th ACM International Conference on Bioinformatics, Computational Biology and Health Informatics, BCB '19, page 113–123, New York, NY, USA, 2019b. Association for Computing Machinery. ISBN 9781450366663. doi: 10.1145/3307339.3342161. URL https://doi.org/ 10.1145/3307339.3342161
- Md. Rezaul Karim, Bharathi Raja Chakravarthi, John P. McCrae, and Michael Cochez. Classification benchmarks for under-resourced bengali language based on multichannel convolutional-LSTM network. In 2020 IEEE 7th International Conference on Data Science and Advanced An- alytics (DSAA), pages 390–399, 2020c. doi: 10.1109/DSAA49011.2020. 00053. URL https://arxiv.org/abs/2004.07807
- 19. Md. Rezaul Karim, Michael Cochez, Oya Beyan, Stefan Decker, and Christoph Lange. OncoNetExplainer: Explainable predictions of cancer types based on gene expression data. In 2019 IEEE 19th International Conference on Bioinformatics and Bioengineering (BIBE), pages 415–422, 2019a. doi: 10.1109/BIBE.2019.00081
- 20. Svitlana Vakulenko, Javier David Fernandez Garcia, Axel Polleres, Maarten de Rijke, and Michael Cochez. Message passing for complex question answering over knowledge graphs. In Proceedings of the 28th ACM International Conference on Information and Knowledge Management, CIKM '19, page 1431–1440, New York, NY, USA, 2019. Association for Computing Machinery. ISBN 9781450369763. doi: 10.1145/3357384.3358026. URL https://doi.org/10.1145/3357384.3358026

- 21. Andrei Ionita, André Pomp, *Michael Cochez*, Tobias Meisen, and Stefan Decker. Transferring knowledge from monitored to unmonitored areas for forecasting parking spaces. *International Journal on Artificial Intelligence Tools World Scientific*, 28(06):1960003, 2019. URL https://arxiv.org/pdf/1908.03629.pdf
- 22. Ruijie Wang, Meng Wang, Jun Liu, Weitong Chen, Michael Cochez, and Stefan Decker. Leveraging knowledge graph embeddings for natural language question answering. In Guoliang Li, Jun Yang, Joao Gama, Juggapong Natwichai, and Yongxin Tong, editors, Database Systems for Advanced Applications, pages 659–675, Cham, 2019. Springer International Publishing. ISBN 978-3-030-18576-3
- 23. Svitlana Vakulenko, Maarten de Rijke, Michael Cochez, Vadim Savenkov, and Axel Polleres. Measuring semantic coherence of a conversation. In Denny Vrandecic, Kalina Bontcheva, and others, editors, The Semantic Web ISWC 2018 17th International Semantic Web Conference, Monterey, CA, USA, October 8-12, 2018, Proceedings, Part I, volume 11136 of Lecture Notes in Computer Science, pages 634-651. Springer, 2018. URL https://www.cochez.nl/papers/semantic\_coherence.pdf
- 24. Andrei Ionita, André Pomp, Michael Cochez, Tobias Meisen, and Stefan Decker. Where to park?: Predicting free parking spots in unmonitored city areas. In Proceedings of the 8th International Conference on Web Intelligence, Mining and Semantics, WIMS '18, pages 22:1-22:12, New York, NY, USA, 2018. ACM. ISBN 978-1-4503-5489-9. doi: 10.1145/3227609.3227648. URL https://www.cochez.nl/papers/parking\_paper.pdf
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- 26. Md. Rezaul Karim, Matthias Heinrichs, Lars C. Gleim, *Michael Cochez*, and others. Towards a FAIR sharing of scientific experiments: Improving discoverability and reusability of dielectric measurements of biological tissues. In *SWAT4HCLS*, 2017. URL http://www.swat4ls.org/wp-content/uploads/2017/11/SWAT4LS-2017\_paper\_11.pdf
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- 28. Michael Cochez, Dominik Hüser, and Stefan Decker. The future of the semantic web: Prototypes on a global distributed filesystem. In 2017 IEEE 37th International Conference on Distributed Computing Systems (ICDCS), pages 1997–2006, June 2017a. doi: 10.1109/ICDCS.2017.270

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- 30. Michael Cochez, Jacques Periaux, Vagan Terziyan, and Tero Tuovinen. Agile deep learning uavs operating in smart spaces: Collective intelligence versus "mission-impossible". In Pedro Diez, Pekka Neittaanmäki, Jacques Periaux, Tero Tuovinen, and Olli Bräysy, editors, Computational Methods and Models for Transport: New Challenges for the Greening of Transport Systems, pages 31–53. Springer International Publishing, Cham, 2018c. ISBN 978-3-319-54490-8. doi: 10.1007/978-3-319-54490-8\_3. URL https://doi.org/10.1007/978-3-319-54490-8\_3. first online 2017
- 31. Michael Cochez, Vagan Terziyan, and Vadim Ermolayev. Large scale knowledge matching with balanced efficiency-effectiveness using LSH forest. In Ngoc Thanh Nguyen, Ryszard Kowalczyk, Alexandre Miguel Pinto, and Jorge Cardoso, editors, Transactions on Computational Collective Intelligence XXVI, pages 46–66. Springer International Publishing, Cham, 2017e. ISBN 978-3-319-59268-8. doi: 10.1007/978-3-319-59268-8.3. URL https://www.cochez.nl/papers/KnowledgeMatchingLSHForest.pdf
- 32. Vagan Terziyan, Mariia Golovianko, and Michael Cochez. TB-structure: Collective intelligence for exploratory keyword search. In Semantic Keyword-Based Search on Structured Data Sources: COST Action IC1302 Second International KEYSTONE Conference, IKC 2016, Cluj-Napoca, Romania, September 8-9, 2016, Revised Selected Papers, pages 171-178. Springer International Publishing, Cham, 2017. ISBN 978-3-319-53640-8. doi: 10.1007/978-3-319-53640-8\_15. URL https://www.cochez.nl/papers/IKC-2016.pdf
- 33. Bushra Zafar, *Michael Cochez*, and Usman Qamar. Using distributional semantics for automatic taxonomy induction. In 2016 International Conference on Frontiers of Information Technology (FIT), pages 348-353, Dec 2016. doi: 10.1109/FIT.2016.070. URL https://www.cochez.nl/papers/distributional-semantics-taxonomy.pdf
- 34. Michael Cochez, Stefan Decker, and Eric Prud'hommeaux. Knowledge representation on the web revisited: The case for prototypes. In The Semantic Web ISWC 2016: 15th International Semantic Web Conference, Kobe, Japan, October 17–21, 2016, Proceedings, Part I, pages 151–166. Springer International Publishing, Cham, 2016a. ISBN 978-3-319-46523-4. doi: 10.1007/978-3-319-46523-4.10. URL https://www.cochez.nl/papers/knowledge-representation-prototypes.pdf
- 35. Michael Cochez and Ferrante Neri. Scalable hierarchical clustering: Twister tries with a posteriori trie elimination. In Computational Intelligence, 2015 IEEE Symposium Series on, pages 756-763. IEEE, Dec 2015. doi: 10.1109/SSCI.2015.12. URL https://www.cochez.nl/papers/TT\_aposteriori\_elimination.pdf

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- 43. Vadim Ermolayev, Rajendra Akerkar, Vagan Terziyan, and *Michael Cochez*. Towards evolving knowledge ecosystems for big data understanding. In

- Rajendra Akerkar, editor, *Big Data Computing*, pages 3–55. Taylor & Francis group Chapman and Hall/CRC, 2014. ISBN 978-1-46-657837-1. Preprint part of my doctoral dissertation
- 44. Ville Isomöttönen, Ville Tirronen, and Michael Cochez. Issues with a course that emphasizes self-direction. In Proceedings of the 18th ACM Conference on Innovation and Technology in Computer Science Education, ITiCSE '13, pages 111–116, New York, NY, USA, 2013. ACM. ISBN 978-1-4503-2078-8. doi: 10.1145/2462476.2462495. URL http://doi.acm.org/10.1145/2462476.2462495
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- 46. Michael Cochez, Ville Isomöttönen, Ville Tirronen, and Jonne Itkonen. The use of distributed version control systems in advanced programming courses. In ICTERI 2013 ICT in Education, Research and Industrial Applications, pages 221–235, Aachen, 2013c. CEUR Workshop Proceedings (1000). URL http://ceur-ws.org/Vol-1000/ICTERI-2013-p-221-235.pdf
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### Workshop Papers

- 1. Taewoon Kim, *Michael Cochez*, Vincent Francois-Lavet, Mark Neerincx, and Piek Vossen. A machine with human-like memory systems. *arXiv* preprint arXiv:2204.01611, 2022. Presented at the Human-Centered Design of Symbiotic Hybrid Intelligence workshop at HHAI 2022
- 2. Daniel Daza, Michael Cochez, and Paul Groth. SlotGAN: Detecting mentions in text via adversarial distant learning. In Proceedings of the Sixth Workshop on Structured Prediction for NLP, pages 32–39, 2022
- Alessandro Generale, Till Blume, and Michael Cochez. Scaling R-GCN training with graph summarization. In Companion Proceedings of the Web Conference 2022, WWW '22, page 1073–1082, New York, NY, USA, 2022. Association for Computing Machinery. ISBN 9781450391306. doi: 10.1145/3487553.3524719. URL https://doi.org/10.1145/3487553.3524719. International Workshop on Graph Learning at the Webconf 2022 arXiv preprint arXiv:2203.02622

- Simone Colombo, Dimitrios Alivanistos, and Michael Cochez. Potential energy to improve link prediction with relational graph neural networks. In AAAI Spring Symposium: MAKE, number 3121 in CEUR Workshop Proceedings, pages 1–9, 2022
- 5. Ruud van Bakel, Teodor Aleksiev, Daniel Daza, Dimitrios Alivanistos, and Michael Cochez. Approximate knowledge graph query answering: From ranking to binary classification. In Michael Cochez, Madalina Croitoru, Pierre Marquis, and Sebastian Rudolph, editors, Graph Structures for Knowledge Representation and Reasoning, pages 107–124, Cham, 2021. Springer International Publishing. ISBN 978-3-030-72308-8
- 6. Daniel Daza and *Michael Cochez*. Message passing query embedding. presented at presented at the GRL+ ICML workshop https://grlplus.github.io/, 2020. URL https://arxiv.org/abs/2002.02406
- Michael Cochez, Martina Garofalo, Jerôme Lenßen, and Maria Angela Pellegrino. A first experiment on including text literals in kglove. arXiv preprint submitted, 2018b. URL https://www.cochez.nl/papers/ literalsForEmbeddings.pdf. Accepted for presentation at the 4th Workshop on Semantic Deep Learning (SemDeep-4)
- 8. Michael Cochez and Vagan Terziyan. Quality of an ontology as a dynamic optimisation problem. In V. Ermolayev et. al, editor, ICTERI 2012 ICT in Education, Research and Industrial Applications, pages 249—256, Aachen, 2012. CEUR Workshop Proceedings (848). URL http://ceur-ws.org/Vol-848/ICTERI-2012-CEUR-WS-DEIS-paper-1-p-249-256.pdf

### Papers Preprints

- Ruijie Wang, Luca Rossetto, Michael Cochez, and Abraham Bernstein. QAGCN: A graph convolutional network-based multi-relation question answering system. In arXiv, 2022a. URL https://arxiv.org/abs/ 2206.01818
- 2. Christopher Wewer, Florian Lemmerich, and *Michael Cochez*. Updating embeddings for dynamic knowledge graphs. arXiv preprint arXiv:2109.10896, 2021
- Leandro Eichenberger, Michael Cochez, Benjamin Heitmann, and Stefan Decker. Secure evaluation of knowledge graph merging gain. arXiv preprint arXiv:2103.00082, 2021
- Michael Ellers, Michael Cochez, Tobias Schumacher, Markus Strohmaier, and Florian Lemmerich. Privacy attacks on network embeddings, 2019. URL https://arxiv.org/abs/1912.10979

## **Proceedings Editor**

1. Jie Tang, Michalis Vazirgiannis, Yuxiao Dong, Fragkiskos D. Malliaros, *Michael Cochez*, Mayank Kejriwal, and Achim Rettinger. Bignet 2018

- chairs' welcome & organization. In Companion Proceedings of the The Web Conference 2018, WWW '18, page 943–944, Republic and Canton of Geneva, CHE, 2018. International World Wide Web Conferences Steering Committee. ISBN 9781450356404. doi: 10.1145/3184558.3192293. URL https://doi.org/10.1145/3184558.3192293
- Michael Cochez, Thierry Declerck, Gerard de Melo, Luis Espinosa Anke, Besnik Fetahu, Dagmar Gromann, Mayank Kejriwal, Maria Koutraki, Freddy Lécué, Enrico Palumbo, and Harald Sack, editors. Proceedings of the First Workshop on Deep Learning for Knowledge Graphs and Semantic Technologies (DL4KGS) co-located with the 15th Extended Semantic Web Conerence (ESWC 2018), number 2106 in CEUR, 2018a. CEUR. URL http://ceur-ws.org/Vol-2106/
- 3. Piero Andrea Bonatti, Stefan Decker, Axel Polleres, and Valentina Presutti. Knowledge Graphs: New Directions for Knowledge Representation on the Semantic Web (Dagstuhl Seminar 18371). Dagstuhl Reports, 8(9): 29–111, 2019. ISSN 2192-5283. doi: 10.4230/DagRep.8.9.29. URL http://drops.dagstuhl.de/opus/volltexte/2019/10328. I was an additional organizer and editor as acknowledged on the first page of the report
- Mehwish Alam, Davide Buscaldi, Michael Cochez, Francesco Osborne, Diego Reforgiato Recupero, and Harald Sack. Proceedings of the workshop on deep learning for knowledge graphs (DL4KG2019) co-located with the 16th extended semantic web conference 2019 (ESWC 2019), 2019. URL http://ceur-ws.org/Vol-2377/
- 5. Mehwish Alam, Davide Buscaldi, *Michael Cochez*, Francesco Osborne, Diego Reforgiato Recupero, and Harald Sack. Proceedings of the workshop on deep learning for knowledge graphs (DL4KG2020) co-located with the 17th extended semantic web conference 2020 (ESWC 2020), 2020. URL http://ceur-ws.org/Vol-2635/
- 6. Andreas Harth, Valentina Presutti, Raphaël Troncy, Maribel Acosta, Axel Polleres, Javier D Fernández, Josiane Xavier Parreira, Olaf Hartig, Katja Hose, and Michael Cochez, editors. The Semantic Web: ESWC 2020 Satellite Events, number 12124 in LNCS, 2020b. Springer. URL https://www.springer.com/gp/book/9783030623265
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## Technical reports, documentation and articles (non-reviewed)

1. Dimitrios Alivanistos, Selene Báez Santamaría, *Michael Cochez*, Jan-Christoph Kalo, Emile van Krieken, and Thiviyan Thanapalasingam. Prompting as probing: Using language models for knowledge base construction, 2022b.

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- 2. Martina Garofalo, Maria Angela Pellegrino, Abdulrahman Altabba, and Michael Cochez. Leveraging knowledge graph embedding techniques for industry 4.0 use cases. Cyber Defence in Industry 4.0 Systems and Related Logistics and IT Infrastructures IOS Press, 51:10, 2018. URL https://arxiv.org/abs/1808.00434
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- Michael Cochez, Stefan Decker, and Eric Gordon Prud'hommeaux. Knowledge representation on the web revisited: Tools for prototype based ontologies. In arXiv, 2016b. URL https://arxiv.org/abs/1607.04809. arXiv:1607.04809 [cs.AI]
- Michael Cochez, Jacques Periaux, Vagan Terziyan, Kyryl Kamlyk, and Tero Tuovinen. Evolutionary cloud for cooperative UAV coordination. Reports of the Department of Mathematical Information Technology, Series C. Software and Computational Engineering, No. C, 1, 2014. URL https://jyx.jyu.fi/dspace/handle/123456789/44629
- 6. Michael Cochez, Sami Helin, and Jiawen Chen. Cloud communication service. In Ivan Porres, Tommi Mikkonen, and Adnan Ashraf, editors, Developing cloud software: algorithms, applications, and tools. TUCS Turku Center for Computer Science, general publication series, 10 2013a. URL http://urn.fi/URN:ISBN:978-952-12-2952-7. This paper had a very light review
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