FILIP ILIEVSKI

Assistant Professor (Sr.) (UD1)

Department of Computer Science, Faculty of Sciences

Vrije Universiteit (VU) Amsterdam

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Other Academic Experience

10/2023-present

Affiliated Scientist, USC Information Sciences Institute

8/2022-8/2023

Research Lead, USC Information Sciences Institute

8/2022-8/2023

Research Assistant Professor of Computer Science, USC Viterbi School of Engi-

neering

12/2019-7/2022 08/2020-12/2020 Research Scientist, USC Information Sciences Institute

Part-time Lecturer, USC School of Engineering

03/2019-11/2019

Postdoctoral Researcher, Vrije Universiteit (VU) Amsterdam

Education

03/2015-02/2019

РнD in Natural Language Processing, VU Amsterdam

- Thesis: "Identity of Long-tail Entities in Text"
- Computational Lexicology and Terminology Lab (CLTL) / Knowledge Representation and Reasoning (KRR)
- Promotors: Piek Vossen, Frank van Harmelen, Stefan Schlobach, Marieke van Erp

03/2017-08/2017

Visiting Research Scholar, Carnegie Mellon University

- · Project: Neural profiling over knowledge graphs
- Department: Language Technologies Institute (LTI)
- Supervisor: Eduard Hovy

09/2013-02/2015

MSc in Artificial Intelligence: Intelligent Systems Design, VU Amsterdam

- Thesis: "NED with two-stage coherence optimization How i am teaching my Ford automobile not to run on 20th century presidential elections in US"
- Supervisors/advisors: Marieke van Erp, Stefan Schlobach, Piek Vossen, Wouter Beek
- GPA: 8.4/10.00, Graduated Cum Laude, VU Fellowship Program (VUFP) Recipient

09/2009-09/2013

BSc in Computer Science and Engineering, Ss. Cyril and Methodius University, Skopje

- Thesis: "Performance Analysis of Techniques for Storage and Organization of Geospatial Data"
- Supervisor: Slobodan Kalajdziski
- GPA: 9.56/10.00, study abroad at VU Amsterdam, The Netherlands (Fall 2012 Spring 2013, funded by the Erasmus Mundus Euroweb Scholarship

Funding

03/2024-09/2028

Human-Centric AI with Common Sense (PI), NWO AiNed, 909,000€ (1.8M€ including internal and external matching)

Supporting Sustainable Diet Policies by Knowledge-based AI (PI; Co-PI Heinout Rei-02/2024-08/2024 jungs, ASI Seed funding, 10,000€ Decision-making by Analogical Reasoning over exoTic Situations (DARTS) (PI), 08/2023-08/2024 ARL DEVCOM, \$100,000 Theme 6A: INVITE: Inclusive and Innovative Intelligent Technologies for Educa-06/2023-05/2028 tion, (USC sub PI; Prime: UIUC), National Science Foundation (NSF), \$500,000 Coherent and commonsensical AI for social influence (PI; Co-PI: Gale Lucas), ISI 02/2023-12/2023 (\$100,000) and US Army (\$50,000) CRII: III: Robust and Explainable AI Agents with Common Sense (PI), National Sci-05/2022-04/2024 ence Foundation (NSF), \$175,000 iPASSAGE: improved Performance, Analytics and Summarization of Synergistic 07/2022-04/2023 Anticipation of Geopolitical Events (Co-PI; PI: Fred Morstatter), Open Philanthropy via the University of Maryland, \$150,000 KG-IA: Knowledge Graph Technology for Information Analytics (PI; co-PI: Pedro 06/2022-11/2022 Szekely), armasuisse Science and Technology, \$112,817 MoSAiC: Multimodal Architectures for Holistic Situational Awareness (PI), BOSCH 12/2021 Research, \$50,000 **Projects** Supporting Sustainable Diet Policies by Knowledge-based AI. Sponsor: ASI. Role: PI. 09/2024-02/2025 Human-Centric AI with Common Sense. Sponsor: NWO. Role: PI. 09/2024-02/2029 Learning with LLMs: Supporting complex reasoning and argumentation and providing 12/2023-08/2024 educational guidance. Sponsor: Humane AI (EU). Role: Subcontractor team lead. Coherent and commonsensical AI for social influence. Sponsor: ISI and AFSR. Role: PI. 02/2022-08/2023 CRII: III: Robust and Explainable AI Agents with Common Sense. Sponsor: NSF. Role: PI. 05/2022-08/2023 MoSAiC: Multimodal Architectures for Holistic Situational Awareness. Sponsor: BOSCH 12/2021-08/2023 Research. Role: PI. KNIC: Knowledge Needed in Context. Sponsor: DARPA. Role: co-PI. 09/2022-08/2023 Machine Common Sense (MCS), team MOWGLI. Sponsor: DARPA. Role: key personnel. 12/2019-08/2023

Publications

Role: PI.

07/2022-11/2022

12/2019-12/2022

Over seventy peer-reviewed publications, many of which in top-tier conferences and journals (AAAI, IJCAI, COLING, EMNLP, NAACL, ACL, ICLR, AKBC, ISWC, ESWC, SWJ, JWS, KBS). An additional nine papers are currently under review.

Knowledge Graph Technology for Information Analytics (KG-IA). Sponsor: armasuisse.

Knowledge Graph Toolkit (KGTK). Sponsor: DARPA. Role: key personnel, PI.

- 1. (under review) Koen Kraiijveld, Yifan Jiang, Kaixin Ma, <u>Filip Ilievski</u>. COLUMBUS: Evaluating COgnitive Lateral Understanding through Multiple-choice reBUSes. AAAI'25.
- 2. (under review) <u>Filip Ilievski</u>, Riccardo Tommasini. Capturing the Semantics of Internet Memes. The Handbook on Neurosymbolic AI and Knowledge Graphs.

- 3. (under review) Mohammad Jaleed Khan, <u>Filip Ilievski</u>, Edward Curry. Neurosymbolic Visual Reasoning with Scene Graphs and Multimodal LLMs. The Handbook on Neurosymbolic AI and Knowledge Graphs.
- 4. (under review) Bradley P. Allen, <u>Filip Ilievski</u>, Saurav Joshi. Quality Attributes for Neurosymbolic Knowledge Engineering Architectures. EKAW.
- 5. (under review) Zhivar Sourati, Darshan Deshpande, <u>Filip Ilievski</u>, Kiril Gashteovski, Sascha Saralajew. Robust Text Classification: Analyzing Prototype-Based Networks. **EMNLP**.
- 6. (under review) Jiarui Zhang, Jinyi Hu, Mahyar Khayatkhoei, Filip Ilievski, Maosong Sun. Towards Perceiving Small Visual Details in Zero-shot Visual Question Answering with Multimodal LLMs. **NeurIPS**.
- 7. (under review) Jiarui Zhang, Mahyar Khayatkhoei, Prateek Chhikara, <u>Filip Ilievski</u>. Vi-Crop: Perceiving Small Visual Details in Zero-shot Visual Question Answering with Multimodal Large Language Models. **NeurIPS**.
- 8. (under review) Yifan Jiang, Jiarui Zhang, Kexuan Sun, Zhivar Sourati, Kian Ahrabian, Kaixin Ma, <u>Filip Ilievski</u>, Jay Pujara. Marvel: Multiple Abstraction and Reasoning benchmark for Visual Evaluation and Learning. **NeurIPS Benchmarks** Track.
- 9. (to appear) Leilani Gilpin, <u>Filip Ilievski</u>. Neuro-Symbolic Reasoning in the Traffic Domain. **Neurosymbolic Artificial Intelligence Journal**.
- 10. (to appear) <u>Filip Ilievski</u>. Human-centric AI with Common Sense. **Springer Nature Synthesis Book**.
- 11. M. Jaleed Khan, <u>Filip Ilievski</u>, John G. Breslin, Edward Curry (2024). A Survey of Neurosymbolic Visual Reasoning with Scene Graphs and Common Sense Knowledge. **Neurosymbolic Artificial Intelligence journal**.
- 12. Darshan Deshpande, Zhivar Sourati, Filip Ilievski, Fred Morstatter (2024). Contextualizing Argument Quality Assessment with Relevant Knowledge. **NAACL**.
- 13. Yifan Jiang, Kaixin Ma, <u>Filip Ilievski</u> (2024). SemEval-2024 Task 9: BRAINTEASER, A Novel Task Defying Common Sense. SemEval workshop, co-located with NAACL.
- 14. Zhivar Sourati, <u>Filip Ilievski</u>, Pia Sommerauer (2024). ARN: Analogical Reasoning on Narratives. **TACL**.
- 15. Bradley P. Allen, <u>Filip Ilievski</u> (2024). Standardizing Knowledge Engineering Practices with a Reference Architecture. Transactions on Graph and Data Knowledge (TGDK).
- 16. Saurav Joshi, <u>Filip Ilievski</u>, Luca Luceri (2024). Contextualizing internet memes across social media platforms. Workshop on Multimodal Content Analysis for Social Good: MM4SG 2024. **Best Paper and Best Presentation Awards**.
- 17. Saurav Joshi, <u>Filip Ilievski</u>, Jay Pujara (2024). Knowledge-powered recommendation for an improved diet water footprint. Proceedings of the AAAI Conference on Artificial Intelligence, Demonstration Track. 38(21), 23805-23807.
- 18. Prateek Chhikara, Dhiraj Chaurasia, Yifan Jiang, Omkar Masur, Filip Ilievski (2024). FIRE: Food Image to REcipe generation. WACV.
- 19. Jiarui Zhang, Mahyar Khayatkhoei, Prateek Chhikara, Filip Ilievski (2023). Visual Cropping Improves Zero-Shot Question Answering of Multimodal Large Language Models. Ro-FoMo, co-located with NeurIPS.
- 20. <u>Filip Ilievski</u>, Kartik Shenoy, Hans Chalupsky, Nicholas Klein, Pedro Szekely (2023). A Study of Concept Similarity in Wikidata. **Semantic Web Journal**.
- 21. Prateek Chhikara, Jiarui Zhang, Filip Ilievski, Jonathan Francis, Kaixin Ma (2023).

Knowledge-enhanced Agents for Interactive Text Games. K-CAP 2023. Best Student Paper Award.

- 22. Yifan Jiang, <u>Filip Ilievski</u>, Kaixin Ma, Zhivar Sourati (2023). BRAINTEASER: Lateral Thinking Puzzles for Large Language Models. **EMNLP**.
- 23. Yifan Jiang, Filip Ilievski, Kaixin Ma (2023). Transferring Procedural Knowledge across Commonsense Tasks. European Conference on Artificial Intelligence (ECAI).
- 24. Ana Iglesias-Molina, Kian Ahrabian, <u>Filip Ilievski</u>, Jay Pujara, Oscar Corcho (2023). Comparison of Knowledge Graph Representations for User Consumption Scenarios. **International Semantic Web Conference (ISWC)** Research Track.
- 25. Jiarui Zhang, <u>Filip Ilievski</u>, Aravinda Kolla, Jonathan Francis, Kaixin Ma, Alessandro Oltramari (2023). <u>A study of situational reasoning in traffic</u>. **KDD**.
- 26. Alessandro Oltramari, Jonathan Francis, <u>Filip Ilievski</u>, Kaixin Ma, Roshanak Mirzaee (2023). Generalizable Neuro-Symbolic Systems for Commonsense Question Answering. Workshop on Neuro-Symbolic Learning and Reasoning (NeSy2023).
- 27. Abhinav Kumar Thakur, Filip Ilievski, Hông-Ân Sandlin, Zhivar Sourati, Luca Luceri, Riccardo Tommasini, Alain Mermoud (2023). Explainable Classification of Internet Memes. Workshop on Neuro-Symbolic Learning and Reasoning (NeSy2023).
- 28. Zhivar Sourati, Filip Ilievski, Hông-Ân Sandlin, Alain Mermoud (2023). Case-based Reasoning with Language Models for Classification of Logical Fallacies. International Joint Conference on Artificial Intelligence (IJCAI).
- 29. Filip Ilievski, Kaixin Ma, Alessandro Oltramari, Peifeng Wang, Jay Pujara (2023). Building Robust and Explainable AI with Commonsense Knowledge Graphs and Neural Models. Compendium of Neuro-Symbolic Artificial Intelligence (book chapter).
- 30. Riccardo Tommasini, <u>Filip Ilievski</u>, Thilini Wijesiriwardene (2023). The Internet Meme Knowledge Graph. Extended Semantic Web Conference (ESWC) Resource Track.
- 31. Zhivar Sourati, Vishnu Priya Prasanna Venkatesh, Darshan Deshpande, Himanshu Rawlani, Filip Ilievski, Hông-Ân Sandlin, Alain Mermoud (2023). Robust and Explainable Identification of Logical Fallacies in Natural Language Arguments. **Knowledge-Based Systems (KBS)**.
- 32. Peifeng Wang, Aaron Chan, Filip Ilievski, Muhao Chen, Xiang Ren (2023). PINTO: Faithful Language Reasoning Using Prompted-Generated Rationales. International Conference on Learning Representations (ICLR). 2023.
- 33. Abhinav Kumar Thakur, <u>Filip Ilievski</u>, Hông-Ân Sandlin, Alain Mermoud, Zhivar Sourati, Luca Luceri, Riccardo Tommasini (2023). Multimodal and Explainable Internet Meme Classification. AAAI AI4SG workshop.
- 34. Aravinda Kolla, <u>Filip Ilievski</u>, Hông-Ân Sandlin, Alain Mermoud. A Study of Slang Representation Methods. Preprint.
- 35. Peifeng Wang, Aaron Chan, <u>Filip Ilievski</u>, Muhao Chen, Xiang Ren (2022). PINTO: Faithful Language Reasoning Using <u>Prompted-Generated Rationales</u>. NeurIPS workshops TL4NLP and TSRML.
- 36. Jiarui Zhang, <u>Filip Ilievski</u>, Aravinda Kolla, Jonathan Francis, Kaixin Ma, Alessandro Oltramari (2022). <u>Utilizing Background Knowledge for Robust Reasoning over Traffic Situations</u>. AAAI Workshop on Knowledge Augmented Methods for NLP.
- 37. Ehsan Qasemi, <u>Filip Ilievski</u>, Muhao Chen, Pedro Szekely (2022). PaCo: Preconditions Attributed to Commonsense Knowledge. **Conference on Empirical Methods in Natu-**

ral Language Processing (EMNLP) Findings.

- 38. Filip Ilievski, Jay Pujara, Kartik Shenoy (2022). Does Wikidata Support Analogical Reasoning? KGSWC.
- 39. Bohui Zhang, <u>Filip Ilievski</u>, Pedro Szekely (2022). <u>Enriching Wikidata with Linked Open Data</u>. ISWC <u>Wikidata workshop</u>.
- 40. Nicholas Klein, Filip Ilievski, Hayden Freedman, Pedro Szekely (2022). Identifying Surprising Facts in Wikidata. ISWC Wikidata workshop.
- 41. Jiarui Zhang, Filip Ilievski, Kaixin Ma, Jonathan Francis, Alessandro Oltramari (2022). A Study of Zero-shot Adaptation with Commonsense Knowledge. **Automated Knowledge Base Construction (AKBC)**.
- 42. Kaixin Ma, Filip Ilievski, Jonathan Francis, Eric Nyberg, Alessandro Oltramari (2022). Coalescing Global and Local Information for Procedural Text Understanding. **Conference on Computational Linguistics (COLING)**.
- 43. Thiloshon Nagarajah, Filip Ilievski, Jay Pujara (2022). Understanding Narratives through Dimensions of Analogy. IJCAI Qualitative Reasoning workshop.
- 44. Jiang Wang, Filip Ilievski, Pedro Szekely, Ke-Thia Yao (2022). Augmenting Knowledge Graphs for Better Link Prediction. International Joint Conference on Artificial Intelligence (IJCAI).
- 45. Sara Melotte, Filip Ilievski, Linglan Zhang, Aditya Malte, Namita Mutha, Fred Morstatter, Ninareh Mehrabi (2022). Where Does Bias in Common Sense Knowledge Models Come From? IEEE Journal on Internet Computing, Special issue on Knowledge-infused Learning.
- 46. Peifeng Wang, Jonathan Zamora, Junfeng Liu, <u>Filip Ilievski</u>, Muhao Chen, Xiang Ren (2022). Contextualized Scene Imagination for Generative Commonsense Reasoning. **International Conference on Learning Representations (ICLR).**
- 47. Alessandro Oltramari, Jon Francis, <u>Filip Ilievski</u>, Kaixin Ma, Roshanak Mirzaee (2022). Generalizable Neuro-symbolic Systems for Commonsense Question Answering. **Neuro-Symbolic Artificial Intelligence: The State of the Art (book chapter)**.
- 48. Nicholas Klein, Filip Ilievski, Pedro Szekely (2021). Generating Explainable Abstractions for Wikidata Entities. Eleventh International Conference on Knowledge Capture (K-CAP).
- 49. Kartik Shenoy, <u>Filip Ilievski</u>, Daniel Garijo, Daniel Schwabe, Pedro Szekely (2021). A Study of the Quality of Wikidata. **Journal of Seb Semantics (JWS)**, Special Issue on Community-Based Knowledge Bases.
- 50. <u>Filip Ilievski</u>, Alessandro Oltramari, Kaixin Ma, Bin Zhang, Deborah L. McGuinness, Pedro Szekely (2021). <u>Dimensions of Commonsense Knowledge</u>. **Knowledge-Based Systems (KBS)**. Volume 229. ISSN 0950-7051. 10.1016/j.knosys.2021.107347.
- 51. Kaixin Ma, Filip Ilievski, Jonathan Francis, Satoru Ozaki, Eric Nyberg, Alessandro Oltramari (2021). Exploring Strategies for Generalizable Commonsense Reasoning with Pre-trained Models. In Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP).
- 52. Avijit Thawani, Jay Pujara, <u>Filip Ilievski</u> (2021). Numeracy Enhances the Literacy of Language Models. In Proceedings of the 2021 **Conference on Empirical Methods in Natural Language Processing (EMNLP)**.
- 53. Peifeng Wang, Filip Ilievski, Muhao Chen, Xiang Ren (2021). Do Language Models

- Perform Generalizable Commonsense Inference? In Findings of the Association for Computational Linguistics: ACL-IJCNLP. 3681–3688. DOI.
- 54. Avijit Thawani, Jay Pujara, Pedro Szekely, <u>Filip Ilievski</u> (2021). Representing Numbers in NLP: a Survey and a Vision. In Proceedings of the 2021 Conference of the **North American Chapter of the Association for Computational Linguistics (NAACL)**: Human Language Technologies. 644–656. DOI.
- 55. Filip Ilievski, Pedro Szekely, Bin Zhang (2021). CSKG: The CommonSense Knowledge Graph. In Proceedings of Extended Semantic Web Conference (ESWC), Resource Track. 680–696. ISBN 978-3-030-77385-4.
- 56. Kaixin Ma, Filip Ilievski, Jonathan Francis, Yonatan Bisk, Eric Nyberg, Alessandro Oltramari (2021). Knowledge-driven Data Construction for Zero-shot Evaluation in Commonsense Question Answering. In Proceedings of the AAAI Conference on Artificial Intelligence. 13507–13515.
- 57. <u>Filip Ilievski</u>, Pedro Szekely, Gleb Satyukov, Amandeep Singh. User-friendly Comparison of Similarity Algorithms on Wikidata. ISWC Wikidata workshop.
- 58. Hans Chalupsky, Pedro Szekely, <u>Filip Ilievski</u>, Daniel Garijo, Kartik Shenoy. Creating and Querying Personalized Versions of Wikidata on a Laptop. ISWC Wikidata workshop.
- 59. Filip Ilievski, Jay Pujara, Hanzhi Zhang (2021). Story Generation with Commonsense Knowledge Graphs and Axioms. AKBC Common Sense Knowledge Bases (CSKB) workshop.
- 60. Zaina Shaik, Filip Ilievski, Fred Morstatter (2021). Analyzing Race and Citizenship Bias in Wikidata. IEEE MASS Workshop for REU Research in Networking and Systems (REUNS 2021).
- 61. Mark Mann, Filip Ilievski, Mohammad Rostami, Aastha Aastha, Basel Shbita (2021). Open Drug Knowledge Graph. ESWC Knowledge Graph Construction (KGC) workshop.
- 62. Ziping Hu, Zepei Zhao, Mohammad Rostami, Filip Ilievski, Basel Shbita (2021). Knowledge Graph-Based Housing Market Analysis. ESWC Knowledge Graph Construction (KGC) workshop.
- 63. Peifeng Wang, Nanyun Peng, Filip Ilievski, Pedro Szekely, Xiang Ren (2020). Connecting the Dots: A Knowledgeable Path Generator for Commonsense Question Answering. Conference on Empirical Methods in Natural Language Processing (EMNLP) Findings. Association for Computational Linguistics. 4129–4140. DOI.
- 64. Filip Ilievski, Daniel Garijo, Hans Chalupsky, Naren Teja, Yixiang Yao, Craig Rogers, Rongpeng Li, Jun Liu, Amandeep Singh, Daniel Schwabe, Pedro Szekely (2020). KGTK: A Toolkit for High-Volume Knowledge Graph Manipulation. In: J. Z. Pan et al. (Eds.): The Semantic Web International Semantic Web Conference (ISWC) 2020, LNCS 12507, DOI.
- 65. Piek Vossen, Filip Ilievski, Marten Postma, Antske Fokkens, Gosse Minnema, Levi Remijnse (2020). Large-scale Cross-lingual Language Resources for Referencing and Framing. In Proceedings of the 12th Language Resources and Evaluation Conference (LREC). 3162–3171.
- 66. Filip Ilievski, Pedro Szekely, Daniel Schwabe (2020). Commonsense Knowledge in Wikidata. ISWC Wikidata workshop.
- 67. Marten Postma, Levi Remijnse, <u>Filip Ilievski</u>, Antske Fokkens, Sam Titarsolej, Piek Vossen (2020). Combining Conceptual and Referential Annotation to Study Variation

- in Framing. International FrameNet Workshop 2020: Towards a Global, Multilingual FrameNet. 31–40.
- 68. Avijit Thawani, Jay Pujara, <u>Filip Ilievski</u>, Pedro Szekely (2020). Representing Numbers in Language Models. West Coast NLP (WeCNLP) Summit.
- 69. Filip Ilievski (2019). Identity of Long-Tail Entities in Text. **Studies on the Semantic Web (book series).** Volume 43. IOS Press. ISBN 978-1-64368-042-2 (print) | 978-1-64368-043-9 (online).
- 70. <u>Filip Ilievski</u> (2019). <u>Identity of Long-Tail Entities in Text.</u> PhD dissertation. Vrije Universiteit Amsterdam. 227p.
- 71. <u>Filip Ilievski</u>, Eduard Hovy, Piek Vossen, Stefan Schlobach, Qizhe Xie (2019). The Role of Knowledge in Establishing Identity of Long-Tail Entities. **Journal of Web Semantics** (**JWS**), Special Issue on Language Technology and Knowledge Graphs. Volumes 61-62. ISSN 1570-8268. 10.2139/ssrn.3697491.
- 72. Filip Ilievski, Piek Vossen, Stefan Schlobach (2018). Systematic Study of Long Tail Phenomena in Entity Linking. In Proceedings of the 27th International Conference on Computational Linguistics (COLING). Association for Computational Linguistics. 664–674.
 73. Piek Vossen, Filip Ilievski, Marten Postma, Roxane Segers (2018). Don't Annotate, but Validate: a Data-to-Text Method for Capturing Event Data. In Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC). European Language Resources Association (ELRA).
- 74. Piek Vossen, Marten Postma, Filip Ilievski (2018). ReferenceNet: a semantic-pragmatic network for capturing reference relations. In Proceedings of the 9th Global Wordnet Conference (GWC). Global Wordnet Association. 219–228.
- 75. Marten Postma, Filip Ilievski, Piek Vossen (2018). SemEval-2018 Task 5: Counting Events and Participants in the Long Tail. In Proceedings of The 12th International Workshop on Semantic Evaluation (SemEval). Association for Computational Linguistics. 70-80. DOI.
- 76. Wouter Beek, Filip Ilievski, Jeremy Debattista, Stefan Schlobach, Jan Wielemaker (2017). Literally Better: Analyzing and Improving the Quality of Literals. **Semantic Web Journal** (SWJ). Semantic Web, volume 9. DOI.
- 77. Wouter Beek, Laurens Rietveld, Filip Ilievski, Stefan Schlobach (2017). LOD Lab: Scalable Linked Data Processing . In Reasoning Web: Logical Foundation of Knowledge Graph Construction and Query Answering (book chapter). Springer International Publishing. 124–155. ISBN 978-3-319-49493-7. DOI.
- 78. Filip Ilievski, Piek Vossen, Marieke van Erp (2017). Hunger for Contextual Knowledge and a Road Map to Intelligent Entity Linking. In proceedings of Language, Data and Knowledge (LDK). Springer International Publishing. 143–149. ISBN 978-3-319-59888-8. 79. Filip Ilievski, Marten Postma, Piek Vossen (2016). Semantic overfitting: what 'world' do we consider when evaluating disambiguation of text?. In Proceedings of the 26th Conference on Computational Linguistics (COLING): Technical Papers. The COLING 2016 Organizing Committee. 1180–1191.
- 80. <u>Filip Ilievski</u>, Wouter Beek, Marieke van Erp, Laurens Rietveld, Stefan Schlobach (2016). LOTUS: Adaptive Text Search for Big Linked Data. In Proceedings of the **Extended Semantic Web Conference (ESWC)**, the 13th International Conference on The Semantic Web. Latest Advances and New Domains Volume 9678. ISBN 978-3-319-34128-6. 470-

485. DOI.

- 81. Filip Ilievski, Giuseppe Rizzo, Marieke van Erp, Julien Plu, Raphael Troncy (2016). Context-enhanced Adaptive Entity Linking. In Proceedings of the Tenth International Conference on Language Resources and Evaluation (LREC). European Language Resources Association (ELRA). 541-548.
- 82. Marieke van Erp, Pablo Mendes, Heiko Paulheim, Filip Ilievski, Julien Plu, Giuseppe Rizzo, Joerg Waitelonis (2016). Evaluating Entity Linking: An Analysis of Current Benchmark Datasets and a Roadmap for Doing a Better Job. In Proceedings of the Tenth International Conference on Language Resources and Evaluation (LREC). European Language Resources Association (ELRA). 4373–4379.
- 83. Roxane Segers, Egoitz Laparra, Marco Rospocher, Piek Vossen, German Rigau, Filip Ilievski (2016). The Predicate Matrix and the Event and Implied Situation Ontology: Making More of Events. In Proceedings of the 8th **Global WordNet Conference (GWC)**. Global Wordnet Association. 364-372.
- 84. Marten Postma, Filip Ilievski, Piek Vossen, Marieke van Erp (2016). Moving away from semantic overfitting in disambiguation datasets. In Proceedings of the Workshop on Uphill Battles in Language Processing: Scaling Early Achievements to Robust Methods. Association for Computational Linguistics. 17-21. DOI.
- 85. Marieke van Erp, Roxane Segers, <u>Filip Ilievski</u>, Antske Fokkens, Rodrigo Agerri, Marco Rospocher, Itziar Aldabe, Egoitz Laparra, German Rigau, Sanne Vrijenhoek (2016). D₅. 2.2 Domain model for financial and economic events, version 3 Deliverable D₅. 2.2.
- 86. Piek Vossen, Tommaso Caselli, Agata Cybulska, Antske Fokkens, Filip Ilievski, Anne-Lyse Minard, Paramita Mirza, Itziar Aldabe, Egoitz Laparra, German Rigau (2016). Event Narrative Module, version 3 Deliverable D5.1.3.
- 87. <u>Filip Ilievski</u>, Wouter Beek, Marieke van Erp, Laurens Rietveld, Stefan Schlobach (2015). <u>LOTUS: Linked Open Text UnleaShed</u>. In Proceedings of the 6th International Workshop on Consuming Linked Data (COLD).
- 88. Marieke van Erp, <u>Filip Ilievski</u>, Marco Rospocher, Piek Vossen (2015). Missing Mr. Brown and buying an <u>Abraham Lincoln</u> Dark Entities and DBpedia. In Proceedings of the NLP and DBpedia workshop.
- 89. Tommaso Caselli, Piek Vossen, Marieke van Erp, Antske Fokkens, Filip Ilievski, Ruben Izquierdo Bevia, Minh Lê, Roser Morante, and Marten Postma (2015). When it's all piling up: investigating error propagation in an NLP pipeline. In: NLP Applications: completing the puzzle.
- 90. Piek Vossen, Tommaso Caselli, <u>Filip Ilievski</u>, Ruben Izquierdo, Alessandro Lopopolo, Emiel Van Miltenburg, Roser Morante, Ngoc Minh, Marten Postma (2015). Words in context: a reference perspective on the lexicon. In Proceedings of the MAPLEX workshop.

Presentations

ARN: Analogical Reasoning on Narratives. Analogy-ANGLE workshop, Jeju, Korea. August 4th, 2024.

Commonsense AI: Beyond LLMs. Artificial Intelligence Research Center (AIRC), Tokyo, Japan. April 25th, 2024.

AI for Good. Japanese Science and Technology Agency, Tokyo, Japan. April 23rd, 2024.

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08/2024

04/2004

04/2024

03/2024	Commonsense Reasoning in Narratives: Beyond LLMs. The DReAMS Lab, online. March 26th, 2024.
01/2024	Commonsense Reasoning in Narratives. Bosch Neuro-Symbolic AI Focus Group, online. January 18th, 2024.
12/2023	Building Storytelling AI with Common Sense. Social AI group, VU Amsterdam. December 14th, 2023.
07/2023	Building Synergistic AI with Common Sense. USC/ISI Seminar. Marina del Rey, CA, USA. July 28th, 2023.
07/2023	Explainable Classification of Internet Memes. Workshop on Neuro-Symbolic Learning and Reasoning (NeSy2023). Siena, Italy. July 5th, 2023.
05/2023	Building (Teams of Humans &) Trustworthy AI with Common Sense. VU Amsterdam, Amsterdam, The Netherlands. May 15th, 2023.
04/2023	Interpretable Generalization between Stories. UCLA Reasoning Lab and UCLA Computational Vision and Learning Lab. Los Angeles, CA, USA. April 19th, 2023.
02/2023	Generalizable Commonsense Reasoning. AAAI 2023 Tutorial. Washington DC, USA. February 8th, 2023.
02/2023	KGTK: User-friendly Toolkit for Manipulation of Large Knowledge Graphs. AAAI 2023
01/2023	Lab. Washington DC, USA. February 7th, 2023. Building Robust and Explainable AI Agents with Common Sense. NLP group at UCSF.
09/2022	Online. January 25th, 2023. Knowledge-based commonsense reasoning and explainability. U.S. Semantic Technologies Symposium Series (US2TS) Symposium. Symposium presentation/tutorial. Michigan
09/2022	State University, East Lansing, MI. Tools and User Experience for KG Engineering. Knowledge Graphs and their Role in the
	Knowledge Engineering of the 21st Century. Dagstuhl Seminar. Deep dive presentation. Dagstuhl, Germany. September 13th, 2022.
08/2022	Building Robust and Explainable AI Agents for the Real World. USC/ISI. Seminar. Online. August 5th, 2022.
07/2022	Augmenting Knowledge Graphs for Better Link Prediction. IJCAI 2022. Conference presentation. Vienna, Austria. July 28th, 2022.
07/2022	Understanding Narratives through Dimensions of Analogy. Qualitative reasoning workshop, IJCAI 2022. Workshop presentation. Vienna, Austria. July 23th, 2022.
05/2022	CSKG: The CommonSense Knowledge Graph. Knowledge Graph Conference (KGC). Conference presentation. Cornell Tech, New York City. May 5th, 2022.
05/2022	Commonsense Knowledge and Reasoning. Workshop on Reasoning with Imperfect Knowledge, Knowledge Graph Conference (KGC). Invited keynote. Online. May 3rd, 2022.
05/2022	KGTK: Tools for Creating and Exploiting Large Knowledge Graphs. Knowledge Graph Conference (KGC). Tutorial. Online. May 2nd, 2022.
04/2022	KGTK: Tools for Creating and Exploiting Large Knowledge Graphs. The ACM Web Conference. Tutorial. Online. April 25th, 2022.
12/2021	Open-World Agents. USC Futures Symposium: AI with Common Sense. Symposium presentation. Online. December 7th, 2021.
10/2021	KGTK: Tools for Creating and Exploiting Large Knowledge Graphs. International Semantic Web Conference (ISWC). Tutorial. Online. October 24th, 2021.
10/2021	2

User-friendly Comparison of Similarity Algorithms on Wikidata. Wikidata-21 workshop, International Semantic Web Conference (ISWC). Workshop paper presentation. Online. October 24th, 2021. Story Generation with Commonsense Knowledge Graphs and Axioms. Common Sense Knowledge Bases (CSKB) workshop, Automated Knowledge Base Construction (AKBC) Conference. Workshop paper presentation. Online. October 8th, 2021. CSKG: The CommonSense Knowledge Graph. Extended Semantic Web Conference (ESWC) 2021. Conference paper presentation. Online. June 10th, 2021. Slides. Knowledge Graph-Based Housing Market Analysis. Knowledge Graph Construction workshop, Extended Semantic Web Conference (ESWC) 2021. Workshop paper presentation. Online. June 6th, 2021. Open Drug Knowledge Graph. Knowledge Graph Construction workshop, Extended Semantic Web Conference (ESWC) 2021. Workshop paper presentation. Online. June 6th, 2021. Building Agents with Common Sense. Knowledge-infused Learning workshop, Knowledge Graph Conference. Invited keynote. Online. May 3rd, 2021. Slides. KGTK: A Knowledge Graph Toolkit for Exploiting Large Knowledge Graphs. The Web Conference 2021, Developers Track. Conference paper presentation. Online. April 22nd, 2021. Slides. Building Agents with Common Sense. Distributed Artificial Intelligence group, King's College London, United Kingdom. Invited talk. Online. April 6th, 2021. Slides. Commonsense Knowledge Acquisition and Representation. AAAI Conference on Artificial Intelligence. Tutorial. Online. February 3rd, 2021. Reasoning with Commonsense Knowledge Graphs. Turing NLP Research group, London, United Kingdom. Invited talk. Online. December 3rd, 2020. Slides. Commonsense Knowledge Graphs (CSKGs). International Semantic Web Conference (ISWC). Tutorial. Online. November 2nd, 2020. KGTK: A Toolkit for High-Volume Knowledge Graph Manipulation. International Semantic Web Conference (ISWC), Research Track. Conference paper presentation. Online. November 3rd, 2021. Slides. Commonsense Knowledge in Wikidata. Wikidata-20 workshop, co-located with the International Semantic Web Conference (ISWC). Workshop paper presentation. Online. November 2nd, 2021. Machine Common Sense and Other Quests at USC-ISI. NEC Labs, Germany. Invited talk. Online. April 20th, 2020. Systematic Study of Long Tail Phenomena in Entity Linking. COLING. Conference paper presentation. Santa Fe, NM, USA. August 21st, 2021. Slides. SemEval-2018 Task 5: Counting Events and Participants in the Long Tail. International Workshop on Semantic Evaluation (SemEval-2018), co-located with NAACL 2018. Workshop task presentation. New Orleans, LA, USA. June 6th, 2018. Slides.

10/2021

06/2021

06/2021

06/2021

05/2021

04/2021

04/2021

02/2021

12/2020

11/2020

11/2020

11/2020

04/2020

08/2018

06/2018

06/2017

11/2016

Hunger for Contextual Knowledge and a Road Map to Intelligent Entity Linking. Lan-

guage, Data and Knowledge (LDK) conference. Conference paper presentation. Galway,

LOTUS: Adaptive Text Search for Big Linked Data. BNAIC conference. Conference ab-

stract presentation. Amsterdam, The Netherlands. November 10th, 2016. Poster.

Ireland. June 19th, 2017. Poster.

Moving away from semantic overfitting in disambiguation datasets. Workshop on Uphill 11/2016 Battles in Language Processing, co-located with EMNLP 2016. Workshop paper presentation. Austin, TX, USA. November 5th, 2016. Poster.

> LOTUS: Adaptive Text Search for Big Linked Data. Extended Semantic Web Conference (ESWC). Conference paper presentation. Heraklion, Crete, Greece. May 31st, 2016. Slides.

> Join the LOD Lab! Scale your Linked Data evaluations to the Web. Extended Semantic

Web Conference (ESWC). Tutorial. Online. May 30th, 2016.

LOTUS: Linked Open Text UnleaShed. 6th International Workshop on Consuming Linked 10/2015 Data (COLD), co-located with the International Semantic Web Conference (ISWC). Workshop paper presentation. Bethlehem, PA, USA. October 12th, 2015.

A Look inside Babelfy: Examining the Bubble. Computational Linguistics in the Nether-12/2015 lands (CLiN). Conference abstract presentation. Amsterdam, The Netherlands. December 18th, 2015. Slides.

> Named Entity Disambiguation with two-stage coherence optimization. Computational Linguistics in the Netherlands (CLiN). Conference abstract presentation. Antwerp, Belgium. February 6th, 2015. Slides.

Valorization

05/2016

05/2016

02/2015

01/2024-02/2024

08/2022-12/2022

04/2023

Alessandro Oltramari, Jonathan Francis, Kaixin Ma, Filip llievski. Knowledge-Driven and pending Self-Supervised System for Question-Answering (US20220147861A1). Product (patent).

Knowledge-enriched AI Bootcamp, in collaboration between Deloitte and the Learning 06/2024 and Reasoning group (VU Amsterdam). Presenter of sessions: Intro to Large Language

Models and Combining LLMs with KGs. Service (education for third parties).

Neuro-Symbolic Technology. Sciencious Soundwaves. Outreach (podcast appearance). 08/2023 The Internet Has a Dark Side - Can We Teach Machines How to Identify it? USC/ISI News. 06/2023

Outreach (website article).

Machines can learn from fables. USC/ISI News. Outreach (website article). 06/2022

Talented early career researchers recognized again by NSF. USC/ISI News. Outreach 04/2022

(website article).

Text Mining, Central Bureau for Statistics (CBS) Netherlands, Lab session coordinator. 05/2019-07/2019 Service (education for third parties).

Teaching

Conversational AI, Bachelor course, Vrije University Amsterdam, Coordinator. 11/2024-12/2024

The Social Web. Master course, Vrije University Amsterdam, Teacher. 11/2024-12/2024

Project Intelligent Systems, Bachelor course, Vrije University Amsterdam, Teacher.

PhD Seminar (CSCI-697), Graduate course, University of Southern California, Guest Lec-

turer, session "Trustworthy AI with Common Sense".

Building Knowledge Graphs (DSCI-558), Graduate course, University of Southern Califor-

Building Knowledge Graphs (DSCI-558), Graduate course, University of Southern Califor-11/2021

nia, Guest lecturer, session "Commonsense Knowledge Graphs".

Duilding Knowledge Graphs (DSCI-558), Graduate course, University of Southern California, Guest lecturer, session "Commonsense Knowledge Graphs".
 Text Analytics (ISE-540), Graduate course, University of Southern California, Guest lecturer, session "Knowledge Graphs".
 Building Knowledge Graphs (DSCI-558), Graduate course, University of Southern California

nia, Lecturer.

o5/2019-o7/2019 Text Mining, Central Bureau for Statistics (CBS) Netherlands, Lab session coordinator.

Knowledge Representation on the Web, Master course, VU Amsterdam, Guest lecturer, session "KR and NLP: The curious case of entities".

Text Mining, Bachelor course, VU Amsterdam, Lecturer.

10/2017-01/2018 Python for Text Analysis, Master course, VU Amsterdam, Lecturer.

10/2017-01/2018 Programming for Humanities and Social Sciences, Bachelor course, VU Amsterdam, Lec-

turer.

01/2019-03/2019

10/2017-01/2018 Digital and Environmental Humanities, Master course, VU Amsterdam, Lecturer.

Databases, Master course, Rijksuniversiteit Groningen, Guest lecturer, session "NoSQL"

Databases".

01/2016-03/2016 Information processing (Informatieverwerking), Bachelor course, VU Amsterdam, Lec-

turer.

Mentoring and Advice

Current team

Ali Asgari. PhD student. Supervisor. VU Amsterdam.

Bradley P. Allen. PhD student. Co-promotor. UvA Amsterdam.

2024- Mohammad Hossein Khojasteh. PhD student. Supervisor. VU Amsterdam.

Fabian Hoppe. PhD student. Co-supervisor. VU Amsterdam.

Past

Mohammad Hossein Khojasteh. Research assistant. Supervisor. VU Amsterdam. Ruthu H. Rooparaghunath. Research assistant. Supervisor. VU Amsterdam.

Mehdi Jafari. Research assistant. Supervisor. VU Amsterdam.
Koen Kraiijveld. Research assistant. Supervisor. VU Amsterdam.

Main supervisor of 5 MSc theses (Tygo Bloem, Koen Kraaijveld, Tanya Kaintura, Aimee Donsu, Taylor Doughty), 6 BSc theses (Ilona Masiuk, Diana Cernetchi, Jan Szumski, Juliusz Janicki, Daniil Paplauski, Adem Kaya), and one mini-master project (Antonis Georgakopou-

los). Second assessor of six Master theses.

Jiarui Zhang. PhD student. Supervisor (informal). USC/ISI.

Zhivar Sourati. PhD student. Supervisor. USC/ISI.

Darshan Girish Deshpande. MsC student worker. Supervisor. USC/ISI.

2022-2024 Prateek Chhikara. MsC student worker. Supervisor. USC/ISI.

Peifeng Wang, PhD student. Advisor. USC/ISI.
 Saurav Joshi. MSc student worker. Supervisor.
 Varun Venkatesh. MSc student worker. Supervisor.
 Yifan Jiang. MSc student worker. Supervisor.

2022-2023 Vishnu Priya Prasanna Venkatesh. MSc student worker. Supervisor.

2022-2023 Thiloshon Nagarajah. MSc student worker. Supervisor.

Abhinav Thakur. MSc student worker. Supervisor. 2022

Saurav Joshi, Yuhua Wu, Shreya Padmanabhan. CKIDS students. Supervisor. 2022

Ana Iglesias. Intern. Supervisor. 2022

Aravinda Kolla. MSc student worker. Supervisor. 2022 Himanshu Rawlani. MsC student worker. Supervisor. 2022

Lucas Zhuang. Intern. Supervisor. 2022

2021

2020-2022

2019

2018

2016

Shubham Akhilesh Singh. MSc student worker. Supervisor. 2022 Jiasheng Gu. MSc student. Directed research Supervisor. 2022 Dweepa Honnavali. MSc student worker. Supervisor. 2022

Jiang Wang. MSc student worker. Supervisor. 2021-2022

Harshit Manektalia. MSc student worker. Supervisor. 2022 Vaibhav Vats. MSc student volunteer. Supervisor. 2022 Sukavanan Nanjundan. MSc student worker. Supervisor. 2022

Aditya Malte. MSc student worker. Supervisor. 2021-2022

Sara Melotte, Aditya Malte, Linglan Zhang, Namita Mutha. CKIDS students. Supervisor. 2021 Zaina Shaik, Undergraduate summer intern (NSF REU program). UC Berkeley. Supervisor. 2021

Jiarui Zhang, Undergraduate summer intern. Tsinghua University. Supervisor.

Bohui Zhang. MSc student worker. Supervisor. 2021

Pushkaraj Jitendra Sarnobat. MSc volunteer. Supervisor. 2021

Kartik Shenoy. MSc student worker. Supervisor. 2021-2022

Ehsan Qasemi, PhD student. University of Southern California. Advisor. 2020-2021 Avijit Thawani, PhD student. University of Southern California. Advisor. 2020-2021

Bin Zhang. MSc student worker. Supervisor. 2020-2021 Hanzhi Zhang. MSc student worker. Supervisor. 2020-2021

Nicholas Klein. MSc student worker/USC Rising star intern. Supervisor.

Jiri Brummer: Comparing various Machine Learning Methods for Element Extraction in 2019

Dutch Contracts. MSc thesis, Business Analytics, KPMG and VU Amsterdam. Supervisor.

Guido Jansen: Low Resource Domain Specific Named Entity Recognition. MSc thesis,

Information studies, Data science, University of Amsterdam. Second reader.

Arash Parnia: Mathematical Entity Recognition System MERCS. MSc thesis, Artificial In-

telligence, VU Amsterdam. Second reader.

Sai Sreewathsa Kovullari: Entity Typing with Page Ranking. MSc thesis, Computer Sci-

ence, VU Amsterdam. Second reader.

Professional Service and Activities

Coordinator. Situated AI Minor (01/2024-); Digital Sustainability Center (DiSC) (01/2024-); Conversational AI course (01/2024-).

Committee Member. Electrical Faculty Council (EFC) (USC, 2023); Thesis Proposal of Peifeng Wang (USC, 2023); Qualifying Exam of Elan Markowitz (USC, 2023).

Panel Reviewer. National Science Foundation, IIS: Information Integration and Informatics (III) (2022, 2023); Amsterdam AI Thesis Awards (2024).

Guest Editor. Semantic Web Journal (Special Issue on Commonsense Knowledge and Reasoning), Neurosymbolic Artificial Intelligence journal (Special Issue on Commonsense Reasoning).

Editorial Board Member. Neurosymbolic Artificial Intelligence journal.

Journal Reviewer Wiley Journal of Software: Evolution and Process, Knowledge-Based Systems, ACM Computing Surveys, Machine Learning (MACH), Artificial Intelligence Journal, Institution of Engineering and Technology (IET), Semantic Web Journal (SWJ), Machine Learning Journal (Special Track on Learning and Reasoning), Journal of Web Semantics (JWS) (Special Issue on Language Technology and Knowledge Graphs), Journal of Natural Language Engineering, Journal on Data Science: Methods, Infrastructure, and Applications, Information Processing and Management journal.

Conference Chair. Tutorial chair, IEEE Big Data (2025); Workshop chair, IEEE Big Data (2024); Proceedings chair, The ACM Web Conference (2023).

Organizer. Analogy-ANGLE workshop at IJCAI (2024), Dagstuhl seminar: Generalization by People and Machines (2024), ESWC Workshop on Generative Neuro-Symbolic AI (GeNeSy) (2024), USC Futures Symposium on AI with Common Sense, (2021), AAAI Workshop on Commonsense Knowledge Graphs (CSKGs) (2021), SemEval-2018 competition on Counting Events and Participants within Highly Ambiguous Data covering a very long tail (2018), Spinoza Workshop: Looking at the Long Tail (2016).

Senior Area Chair. Workshop on Semantic Reasoning and Goal Understanding in Robotics (2024).

Area Chair. COLING (2024), ACL (2023), EMNLP (2022).

Conference Reviewer. Conference on Advances in Cognitive Systems (ACS) (2024), Conference on Knowledge Engineering and Knowledge Management (EKAW) (2024), Hybrid Human-Artificial Intelligence (HHAI) Conference (2024), International Conference on Learning Representations (ICLR) (2024), European Conference on Artificial Intelligence (ECAI) (2023), NeurIPS (2023), ACM Symposium on Applied Computing (SAC) (2021, 2022, 2023, 2024), International Joint Conference on Artificial Intelligence (IJCAI) (2021, 2022, 2023, 2024), ACL Rolling Review (2021, 2022, 2023), ACM International Conference on Information and Knowledge Management (CIKM) (2020, 2021, 2022), COLING (2016, 2018, 2020, 2022), ACM Conference on Hypertext and Social Media (2021, 2022), Language Resources and Evaluation Conference (LREC) (2020, 2022), Extended Semantic Web Conference (ESWC) (2017, 2020, 2021, 2022, 2024), Conference on Empirical Methods in Natural Language Processing (EMNLP) (2021), ACL (2021), AAAI (2021, 2024, 2025), Global Wordnet Conference (GWC) (2019, 2021), AACL-IJCNLP (2020), Biographical Data in a Digital World (2017, 2019), Conference on Lexical and Computational Semantics (*SEM) (2018), Language, Data and Knowledge (LDK) (2017), Computational Linguistics in the Netherlands (CLiN) (2015).

Workshop Reviewer. ISWC workshop on Retrieval-Augmented Generation Enabled by Knowledge Graphs (RAGE-KG) (2024), ACL workshop on knowledge graphs and large language models (KaLLM) (2024), NeurIPS Ro-FoMo: Robustness of Few-shot and Zeroshot Learning in Large Foundation Models (2023), Workshop on Neuro-Symbolic Learning and Reasoning (NeSy) (2023), EACL Student Research Workshop (SRW) (2021, 2023, 2024), ACL Workshop on Commonsense Representation and Reasoning (2022), Wordnets in the Deep Learning Era (WDLE) (2022), Wikidata workshop (2021, 2022, 2023), International Workshop on Semantic Evaluation (SemEval) (2018, 2020, 2021), SEMANTICS (2016, 2018), European Summer School in Logic, Language and Information (ESSLLI) (2017), Workshop on Open Knowledge Base Question Answering (OKBQA) (2016), Making Sense of Micro-

posts NEEL challenge (2016), NLP Applications: completing the puzzle (2015). **Participant and Session Organizer**. Dagstuhl Seminar Knowledge Graphs and their Role in the Knowledge Engineering of the 21st Century (2022).

Technical skills

- Areas: Commonsense Reasoning, Knowledge Graphs, Information Extraction, Semantic Web, Machine Learning, Language Modeling, Knowledge Integration, Transfer Learning, Explainability
- Languages: Python, Java, Node.js, HTML/Javascript/CSS, C#, Matlab, R, C, C++
- **Systems, Tools, and Packages:** SciKit Learn, t-SNE, Sentence-transformer, graphtool, NetworkX, TensorFlow, SpaCy, NLTK, Jupyter Notebooks, Pandas, Matplotlib
- **Databases:** SQL, Neo4j, ElasticSearch, Redis, Couchbase, MongoDB, Semantic Web technologies (RDF, SPARQL, ontologies)

Other Experience

- Volunteer at HackYourFuture, teaching refugees to code
- Participation in various civil and student NGOs in Europe: EESTEC, IAESTE, Youth Cultural Center (MKC) Bitola

Languages (CEFR levels)

- Macedonian Native speaker
- English C2
- Serbocroatian C1
- Dutch B1
- Spanish A₂
- German A1