

# Bram Steenwinckel

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Performing challenging research within the field of semantic web, with a strong focus on realizing cutting-edge and explainable hybrid AI applications. Eager to leverage my expertise in AI, ML, and knowledge representation to contribute to the development of innovative solutions that seamlessly integrate structured and unstructured data, fostering explainability and robust decision-making. Driven by a passion for pushing the boundaries of AI technology and drive advancements across industries.

## Relevant Experience

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2023-Today	Flanders AI	Use Case lead	Belgium
<ul style="list-style-type: none"><li>- Responsible for bridging AI and semantics within the scope of psoriasis dermatology.</li><li>- Cross-domain research collaboration with 3 different universities.</li></ul>			
2023-Today	IDLab	Postdoc	Belgium
<ul style="list-style-type: none"><li>- Co-management of ± 10 PhDs within the domain of semantics, machine learning and LLMs.</li></ul>			
2017-2024	mBrain project	PhD Researcher	Belgium
<ul style="list-style-type: none"><li>- Creation of real-evidence framework.</li><li>- Hybrid solution of semantic web technologies and biomarkers for stress, sleep, migraine, depression, smoking triggers, etc. based on smartphone and wearable data.</li></ul>			
2021-2023	Volvo project	PhD Researcher	Belgium
<ul style="list-style-type: none"><li>- Creation of ontology + knowledge graph + ML for predictive maintenance at Volvo Cars Paintshop.</li><li>- New paradigm to let Volvo operators integrate new knowledge on the fly.</li></ul>			
2020-2022	DAHCC project	PhD Researcher	Belgium
<ul style="list-style-type: none"><li>- Creation of ontology &amp; knowledge graph to combine data &amp; metadata in a homecare setup.</li><li>- Human activity recognition using a knowledge graph embeddings and machine learning.</li></ul>			
2017-2019	Dyversify project	PhD Researcher	Belgium
<ul style="list-style-type: none"><li>- Hybrid AI solution for ventilation and predictive maintenance railway domain.</li><li>- Major contribution of an overall architecture to integrate machine learning and knowledge graph for industry use cases.</li></ul>			

## Education

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2023	PhD	Ghent University	Belgium
2017	Master Computer Science Engineering	Ghent University	Belgium
2015	Bachelor of Science: Informatics	Ghent University	Belgium

## Grant Funding

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FWO PhD Strategic Basic research grant (1SA0219N)

## Awards and Recognition

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2018	ISWC Travel grant
2019	Semi-finalist (2nd place) Battle of the Sciences
2019	Second place in the SemTab challenge, ISWC conference
2021	Honourable mention in the SemTab challenge, ISWC conference
2022	Third place Kaggle: Ion Switching competition with accompanying Nature publication
2023	Invited speaker at Rapid Methods Europe series (RME2023)
2023	Laureate of the Rotary Science Award for the impact of my PhD on elderly care

## Professional Service Activities

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2021 Kaggle BIPOC Mentor  
2023 ESWC Workshop Knowledge Graph Construction Workshop Reviewer  
2024 ESWC Workshop Knowledge Graph Construction Workshop Reviewer  
2024 ESWC Resource Track Reviewer  
2024 SEMANTICS Research Track Reviewer  
2024 ISWC Organizer of Anomaly Detection for Dynamic Knowledge Graphs Challenge

## Publications

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- Steenwinckel, Bram, et al., Self-learning algorithms for the personalised interaction with people with dementia, AAAI, 2018.
- Steenwinckel, Bram, Adaptive anomaly detection and root cause analysis by fusing semantics and machine learning, ESWC, 2018.
- Steenwinckel, Bram, et al., Towards adaptive anomaly detection and root cause analysis by automated extraction of knowledge from risk analyses, ISWC, 2018.
- Steenwinckel, Bram, et al., Automated extraction of rules and knowledge from risk analyses: a ventilation unit demo, ISWC, 2018.
- Steenwinckel, Bram, et al., Csv2kg: Transforming tabular data into semantic knowledge, Semtab ISWC, 2019.
- Steenwinckel, Bram, et al., FLAGS: A methodology for adaptive anomaly detection and root cause analysis on sensor data streams by fusing expert knowledge with machine learning, Future Generation Computer Systems, 2021.
- Steenwinckel, Bram, et al., Facilitating the analysis of COVID-19 literature through a knowledge graph, ISWC, 2020.
- Steenwinckel, Bram, et al., INK: knowledge graph embeddings for node classification, Data Mining and Knowledge Discovery ,2022.
- Steenwinckel, Bram, et al., MAGIC: Mining an Augmented Graph using INK- starting from a CSV, ISWC, 2021.
- Steenwinckel, Bram, et al. "Data analytics for health and connected care: Ontology, knowledge graph and applications", Pervasive Health, 2022.
- Steenwinckel, Bram, et al., pyRDF2Vec: a python implementation and extension of RDF2Vec, ESWC ,2023.
- Steenwinckel, Bram, et al. TALK: Tracking Activities by Linking Knowledge Engineering Applications of Artificial Intelligence, 2023.
- Steenwinckel, Bram, et al., INK: Knowledge graph representation for efficient and performant rule mining, Semantic web journal, 2024.

For more information regarding my co-authored publications, please [visit my google scholar profile](#).

## Skillset

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Python, OWL, RDF, SPARQL, SWRL, Ontology design patterns, Knowledge graph embeddings, Knowledge graph creation, Semantic Rule mining, Stream Reasoning, Rule-based Reasoning, Bash, Java, Javascript, HTML, CSS, C, C++, Android, Scikit-learn, Pandas, Numpy, Scipy, Plotly, FastAPI, Airflow, GIT, Docker, Docker compose, Docker Swarm, Kubernetes, Time-series analysis