The News Angler Project: **Exploring the Next Generation of Journalistic Knowledge Platforms**





The *News Angler project* aims to support journalists with finding new and unexpected connections and angles in unfolding news stories. The project therefore explores how artificial intelligence (AI) techniques, such as knowledge graphs, natural-language processing (NLP) and machine learning (ML), can be exploit big and open data sources to support high-quality journalism.

The project is developing News Hunter, a big-data ready Journalistic Knowledge Platform (JKP) prototype, which continuously harvests potentially news-relevant texts from social media and other sources; analyses them semantically and represents them in a central knowledge graph, which can be further analysed, enriched with data from the Linked Open Data (LOD) cloud, and used to provide leads, angles, and background information to working journalists.

Techniques

- Knowledge graphs for syntactic and semantic integration
- Semantic techniques and datasets
- Natural-Language Processing (NLP): co-reference resolution, named-entity linking (NEL), relation extraction, etc.
- Reasoning and machine learning

Results

- Challenges and opportunities for Journalistic Knowledge Platform (JKPs)
- Usage scenarios for JKPs
- Survey of knowledge graphs in the news
- Survey of named-entity linking (NEL)
- News Hunter, a JKP prototype
- State-of-art cloud infrastructure for NH
- Reference archtecture forJKP
- OWL ontologies for representing news items, news events and news angles
- Analyses and representations of selected computational news angles
- Analogical reasoning over news angles
- Location angle detector



The News Hunter architecture

Harvesting news-related information from social media and other sources; analysing, organising, enriching and presenting newsrelated information to journalists. Implemented state-of-the-art big data and distributed technologies.





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Selected publications

- Gallofré Ocaña, M. & Opdahl, A.L. (2021). Developing a Software Reference Architecture for Journalistic Knowledge Platforms. In Proc. SAML'2021, ECSA 2021 Workshops.
- Gallofré Ocaña, M (2021). Identifying Events from Streams of RDF-Graphs Representing News and Social Media Messages

In Proc. The Semantic Web: ESWC 2021 Satellite Events (pp. 186-194).

- Opdahl, A. L., & Tessem, B. (2021). Ontologies for finding journalistic angles, Software and Systems Modeling, 17 pp.
- Gallofré Ocaña, M., & Opdahl, A. L. (2020). Challenges and Opportunities for Journalistic Knowledge Platforms. Proceedings of the CIKM 2020 Workshop, 2699, 43.
- Berven, A., Christensen, O.A., Moldeklev, S., Opdahl, A.L., and Villanger, K.J. (2020). A Knowledge-Graph Platform for Newsrooms, Computers in Industry 123, 103321, Elsevier.
- Motta, E., Daga, E., Opdahl, A. L., & Tessem, B. (2020). Analysis and Design of Computational News Angles. IEEE Access, 8 pp. 120613-120626.
- Al-Moslmi, T., Ocaña, M. G., Opdahl, A. L., & Veres, C. (2020). Named entity extraction for knowledge graphs: A literature overview. IEEE Access, 8, 32862-32881.
- Tessem, Bjørnar (2019). Analogical New Angles from Text Similarity. In Artificial Intelligence XXXVI, Lecture Notes in Computer Science (LNCS), Springer, pp. 449-455.
- Tessem, B., & Opdahl, A. L. (2019, May). Supporting journalistic news angles with models and analogies. In 13th Int. Conf. RCIS 2019, pp. 1-7.
- Gallofré Ocaña, Marc; Nyre, Lars; Opdahl, Andreas Lothe; Tessem, Bjørnar; Trattner, Christoph; Veres, Csaba (2019). Towards a Big Data Platform for News Angles. In CEUR Workshop Proceedings, Vol-2316, ISSN 1613-0073,
- Berven, A., Christensen, O. A., Moldeklev, S., Opdahl, A. L., & Villanger, K. J. (2018). News Hunter: building and mining knowledge graphs for newsroom systems. NOKOBIT, 26, 1-11.
- Opdahl, A. L., Berven, A., Alipour, K., Christensen, O. A., & Villanger, K. J. (2016, November). Knowledge graphs for newsroom systems. Short paper in Norsk konferanse for organisasjoners bruk av IT (NOKOBIT, Vol. 24, No. 1).