



Seminar Hora Informaticae

Institute of Computer Science, Prague

Tuesday, April 28, 2026, 13.30 – 15.30 (1.30 – 3:30 PM) CEST

Meeting Room 318, Address: Pod Vodárenskou věží 2, Prague 8

Meeting ID: 914 0834 4018, Passcode: 668534



<https://cesnet.zoom.us/j/91408344018?pwd=x2Qlz4F42BxlMSmWc1HOwHHA7Uw7PN.1>

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A Sociological Application of Topic Modeling in Science Mapping.

Dense embedding vectors that preserve contextual information have become the preferred technique for representing text in various computational tasks. Topic modeling, which traditionally relies on the bag-of-words approach to represent texts as sparse vectors of topic proportions, may now appear obsolete in comparison. Nonetheless, the underlying properties and assumptions of topic modeling make it an appealing choice for applications in the social sciences and humanities, where semantic interpretability remains a primary concern. This presentation will demonstrate decomposition of a topic model of scientific publications aggregated at the categorical level of disciplines into a cloud of topics via principal component analysis. The coordinates of the obtained space, determined by both topics and disciplines, are highly interpretable, with the distinctions between Culture-Nature and Life-Non-life identifiable as the main principles of topic variation in disciplines. The topic portfolios of individual scientists can be projected onto this space to provide a continuous measure of their epistemological preferences at the sub-disciplinary level. The resulting science map readily lends itself to validation through the attributes of publications and researchers and facilitates tracking relationships between knowledge and knowledge producers.

References:

[1] Hladík, R., and Yann R. “Mapping Knowledge: Topic Analysis of Science Locates Researchers in Disciplinary Landscape.” *Poetics* 108 (January 2025): 101950.

<https://doi.org/10.1016/j.poetic.2024.101950>.

[2] Klavans, R., and Kevin W. B. “Toward a Consensus Map of Science.” *Journal of the American Society for Information Science and Technology* 60 (3): 455–76, 2009.

<https://doi.org/10.1002/asi.20991>.

Radim Hladík (<https://stss.flu.cas.cz/all/people/radim-hladik>) is a researcher at the Institute of Philosophy of the Czech Academy of Sciences in Prague, Czech Republic. His research interests span the quantitative studies of science, text analytics, digital humanities, media studies, and scholarly communication. He is also an editor of the Theory of Science journal and the chair of the Czech Association for Digital Humanities. Additionally, he is a developer of free and open source scientific software for qualitative data analysis, Requal. Radim Hladík earned his MA in Media Studies at the Faculty of Social Sciences of Charles University in Prague, where he also received his PhD. in Sociology in 2011. He was a Fulbright visiting student researcher at the Department of Sociology at Columbia University (New York, USA) in 2009-2010 and a JSPS postdoctoral fellow at the National Institute of Informatics (Tokyo, Japan) in 2017-2019.

HORA INFORMATICAЕ (meaning: TIME FOR INFORMATICS) is a broad-spectrum scientific seminar devoted to all core areas of computer science and its interdisciplinary interfaces with other sciences and applied domains. Original contributions addressing classical and emerging topics are welcome. Founded by Jiří Wiedermann, the seminar is running since 1994 at the Institute of Computer Science of the Czech Academy of Sciences in Prague.

<https://www.cs.cas.cz/horainf>