"Automated MeSH Indexing of Biomedical Literature using Contextualized Word Representations"

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Περίληψη – Abstract

Appropriate indexing of resources is necessary for their efficient search, discovery and utilization. Relying solely on manual effort is time-consuming, costly and error prone. On the other hand, the special nature, volume and broadness of bio-medical literature pose barriers for automated methods. In this presentation I explain how current word embedding algorithms can be efficiently used to support the task of bio-medical text classification. Both deep- and shallow network approaches are implemented and evaluated. Large datasets of biomedical citations and full texts are harvested for their metadata and used for training and testing. The ontology representation of Medical Subject Headings provides machine-readable labels and specifies the dimensionality of the problem space. These automated approaches are still far from entirely substituting human experts, yet they can be useful as a mechanism for validation and recommendation.

O Dr. Dimitrios Koutsomitropoulos is a tenured Lab Lecturer at the Department of Computer Engineering and Informatics and a research associate at the High Performance Information Systems Laboratory (HPCLab) and the Machine Learning Laboratory (ML@Cloud), University of Patras. He is also adjunct faculty member at the Hellenic Open University and formerly at the Technological Educational Institution of Western Greece. He has received a fellowship-awarded Ph.D. and a M.Sc. from the same department, specializing in knowledge management and discovery on the Web. For over 20 years, he has participated and lead a variety of R&D projects with European and national funding, focusing on the application and promotion of ICT for the cultural and educational sector. His research interests include big and linked data, semantic analytics, representation and deep learning, digital libraries, automated reasoning, metadata integration and the semantic web, where he has published over 90 research articles and papers. He has served as general chair, technical chair and steering committee member in many international conferences and workshops. He is program committee member and reviewer for over 40 international journals and conferences and the editor of the Data journal special issue on Semantics in the Deep: semantic analytics for big data and the Semantic Web journal special issue on semantic web and reasoning for cultural heritage and digital libraries. He is the recipient of the NDC 1st Prize on Applications for Open Data and Repositories for Science & Heritage (Hack@EKT contest) and a best paper award at IEEE INISTA 2019.

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