Promoting academia-industry alliances for R&D through collaborative and open innovation platform - All4R&D

Co-funded by the Erasmus+ Programme of the European Union

NPUA/IIAP Cooperative R&D Unit

OPEN CALL FOR PARTICIPATION TO NPUA&IIAP RESEARCH PROJECT

Semantic Analysis of Multilingual Text and Semantic Network Rendering

Promoting academia-industry alliances for R&D through collaborative and open innovation platform

Project reference number: 598719-EPP-1-2018-1-MK-EPPKA2-CBHE-JP

Project duration: 15 November 2018 – 14 November 2021
EU funding instrument: European Neighbourhood Instrument (Erasmus+: KA2 CBHE)
Erasmus+ (CBHE) grant amount: 531,165.00 €
Partner countries: Armenia, Bosnia and Herzegovina, North Macedonian, Austria, Germany, Finland
Target groups: University management and students, companies, research institutions, intermediaries.
Grant holder: Ss. Cyril and Methodius University in Skopje, North Macedonia
Coordinator: Prof. Elena Dumova-Jovanoska, Ss. Cyril and Methodius University in Skopje

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Call for Participation opens: 26/09/2022

Deadline for submissions: 31/10/2022

Project summary

In the absence of special rules, texts representing a certain meaning are introduced by operators of different information systems in different ways. Usually, the problem of determining semantic equivalence is considered algorithmically unsolvable. At the level of individual software solutions, states and the world community as a whole, technologies are used that make it possible to implicitly transfer the function of comparing "names" to the computer operator, and present the result obtained in the form of a code. For business applications, in any case, algorithmically convenient search forms based on semantic analysis and fuzzy queries are used. Problems in this area have many potential applications such as information extraction, answering questions, generalizing documents, machine translation, building thesauri and semantic networks, language modelling, paraphrasing, etc. Finding the required values that are semantic equivalents in various sets (lists of values of a given type) can be interpreted as the presence of a semantic connection, the totality of which makes up a semantic network.

Project outcomes

In this project, our own research made it possible to design a software module that allows you to build an index for a table of "names" containing hundreds of millions of rows, with which you can issue a query to find data that has a similar description to data from a list of hundreds of thousands of query rows. This is important because in the absence of special rules, texts representing a certain meaning are introduced by operators of different information systems in different ways.

Challenges facing participants (or Who is it for)?

The main challenge is the cross-disciplinary approach focuses on the development of machine learning and deep learning methods, based on data from experiments on natural language recognition and transformation. We look forward to close cooperation with companies engaged in research in the field of artificial intelligence, as well as organizations from the field of linguistics.

What will be provided by NPUA/IIAP Cooperative R&D Unit?

Research and development are planned to be carried out mainly on the basis of the Machine Learning Lab equipped with modern computers, printers and scanners with Wi-Fi capabilities, as well as high-speed access to national and international scientific networks.

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Proposals wanted and Criteria for acceptance

The basic criteria for acceptance for individuals and companies are the following:

- Level and type of education: Undergraduate degree in Mathematics, Computer science or Linguistics
- Software skills: Windows and mobile OS, Object-Oriented Programming
- Research skills: basic knowledge on Big Data and Machine Learning

Timeline

- To develop voice / image recognition algorithms, M8
- To develop suitable unsupervised learning algorithm, M10
- To develop suitable supervised learning algorithm, M12

How to participate (or apply)?

The applicant (company or researcher) should send a motivation letter and portfolio/CV to the NPUA/IIAP Cooperative R&D Unit (dtc-rdu-info@polytechnic.am) to state motivation to participate in the project by indicating the technical and scientific experience and competences. Then we will organize in-person interviewing to make final decision.