

OPINION

by Ivan Kolev Koychev,
Professor at the Faculty of Mathematics and Informatics,
at the University of Sofia "St. Kliment Ohridski",
for the competition for the academic position of "Professor", for the needs of the
Institute of Information and Communication Technologies (IICT) - BAS, in the
professional field 4.6 Informatics and Computer Sciences, specialty "Informatics",
announced in State Gazette no. 49/21.06 0.2019

In the announced competition for a "professor" for the needs of IICT BAS as the only candidate participating **Assoc. Prof. Kiril Simov** of IICT BAS. The applicant has submitted a **complete set of documents** in accordance with the requirements of IV. Art. 9. (1) IICT for candidates for academic positions "professor", which was presented to me.

Prof. Simov is a graduate of the Faculty of Mathematics and Mechanics of Sofia University "St. Kl. Ohridski", - **Master** of Informatics since 1986. He was a doctoral student at the Institute of Mathematics and Informatics, Department of Mathematical Linguistics. His doctoral dissertation was on "Logic processing facilities linguistic knowledge in support phrasal grammar" defended on 17.04.2006. He has a diploma for educational and scientific degree "doctor" with specialty code 01.01.12 "Informatics" issued by VAK.

The submitted documents show **that the applicant meets the minimum requirements for candidates** to occupy the academic position of "professor" **according to Article Art. 29.** (1) of the ZRABRB, as follows:

1. He has a **Ph.D. degree**.
2. **He occupies an academic position "associate professor"** at the same scientific organization more than five years and was a **leader and member of the scientific - research teams**.
3. He has presented **publications in specialized journals**, equivalent to the monograph not repeat presented for acquiring educational and scientific degree "doctor" and for occupying the academic position "associate professor".
4. He has also submitted **other original research publications**.
5. **Meets the minimum national requirements** of art. 2b, para. 2 and 3 respectively of the requirements of art. 2b, para. 5.
6. There is no legal plagiarism proven in scientific works.

In the presented "Reference of Assoc. Prof. Kiril Simov for implementation of minimum national specific requirements of IICT BAS for occupying the academic position "professor" in the professional field 4.6. Informatics and Computer Science, specialty "Informatics" is correct. It shows that the candidate **fulfills, as some of them significantly exceeds, the minimum requirements** of IICT-BAS for occupying the academic position of "professor".

He also meets Art. 2., Vol. 5. of the BAS Regulations: "Applicants for the academic position of "Professor" have a clearly defined scientific topic in which they are leading researchers.". Assoc. Prof. Simov is a **leading specialist with international recognition** in the field of artificial intelligence, especially in the field of natural language processing. There are significant scientific and applied contributions in the following areas:

- Creating language resources for Bulgarian and other languages (mainly for English)
- Creation of language technologies for Bulgarian and other languages (mainly for English)
- Creation of semantic resources and technologies
- Applications of linguistic and semantic resources and technologies

Evidences for the significance of his scientific contributions are **the publications in prestigious international journals and proceeding** with as **hundreds of citations** and his participation in **many international and national projects**. He is the co-author of 180 **publications** in Bulgarian and international scientific journals and series. Papers, in which he is a co-author are **cited** according: Google Scholar - over 1900 times; Scopus - over 38 times.

He participated in 10 international, and several national **projects**, as in most of them he has the **leading role**. Led his projects have brought more then 743 000 levs **additional funding** for the institute.

In the publications presented for the competition, the original scientific and applied scientific **contributions** of Assoc. Prof. Kiril Simov can be summarized in the following directions:

- **Application of language and semantic technologies in the field of e-learning.** The purpose of the development is to use the alignment of language resources with semantic resources for indexing learning material for multilingual search. In particular, his contributions to this area can be summarized as follows:
 - *A model of ontology-text dependencies has been developed*
 - *Methodology for building ontology of application areas*
 - *Building ontologies for different application areas*
 - *Building ontology-text dependencies for two application areas.*
 - *Checking ontology-text dependencies for various eLearning tasks*
 - *Creating an ontological dictionary for the Bulgarian language*
 - *Experiments with chains of relationships for dissemination of semantic annotations*
- **Creating language resources**
 - *Design schemes for annotation of language resources and procedures to extract information* for the needs of creation of new language resources. There are produced: a corpus with political speeches, valence dictionary of Bulgarian language and system for transcribing DBpedia URIs from other languages to Bulgarian.
- **Creation of language technologies**
 - *Defining a general representation of linguistic knowledge.* A joint presentation is required to solve two or more automatic word processing tasks together.

- *Designing a system for experiments with dependency analysts in text.* The system aims to build a new syntactic analysis based on cumulative analyzes from several statistical parsers.
- *Developed algorithm for building a semantic representation of the sentence* - built to minimum recursive tree of syntactic dependencies for sentence.
- *Designing experiments to solve text analysis problems.* His particular contribution is in the design of the architecture and specifications of several such systems, as well as in the experiments themselves. The development is applied to solve problems such as: grammatical annotation, recognition of named entities, parsing, and combinations thereof.
- **Creation of semantic resources and technologies**
 - *Algorithms to expand the knowledge graph*, which draw connections between concepts presented in the graph of knowledge, built on the basis of WordNet.
 - *Development of a Linked Open Data Database* that combines several freely available Linked Open Database (including DBpedia, Geonames, Freebase and some others). The main contribution of Assoc. Prof. Simov is in finding contradictions in the combined data and in defining a unifying ontology that allows access to all the data in the combination.
- **Applications of linguistic and semantic resources and technologies**
 - *Applications of language processing in a question answering system.* With the contribution of Assoc. Simov in defining the system architecture and defining the characteristics for evaluating the validity of the answers.
 - *Creation of a database for storing data extracted from documents*, in which the specific contribution of D-r Simov is the development of the structural ontology for the representation of the documents and the extracted facts from them.

D-r Simov has participated in the organizing committees of over 20 international conferences, seminars and schools.

Assoc. prof. Simov supervised **2 PhD students**, which successfully defended their thesis.

CONCLUSION

The documents and materials presented by the applicant **meet all** the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the Rules for the implementation of the ZRASRB and the relevant regulations of BAS and IICT-BAS. Assoc. Prof. Simov **fulfills the minimum requirements of IICT-BAS for occupying the academic position of "Professor"**. He is a **leading specialist with international recognition in the field of natural language processing**. The scientific and applied contributions are original and significant. **Publications in reputable international issues with hundreds of citations** and participation in numerous **international projects** are proof of this.

After examining the submitted application documents and scientific works, analyzing their significance and contained in their scientific and applied contributions, I am giving **positive assessment** and suggesting to the scientific panel to prepare a report-proposal to the Scientific Committee of the IKT- BAS **for the selection of the candidate associate professor Dr. Kiril Simov for the academic position "Professor"** in the professional field 4.6 Informatics and Computer Science, specialty "Informatics", announced in SG 49/21.06 0.2019

10/16/2019

Sofia

Signature:



/Prof. Dr. Ivan Koychev/