

## Review

by Prof. Dr Kalinka Kaloyanova

Sofia University "St. Kliment Ohridski ", Faculty of Mathematics and Informatics

for the competition for occupation of the academic position „Professor“  
in the professional field 4.6 Informatics and Computer Science,  
specialty "Informatics",

for the needs of the Institute of Information and Communication Technologies (IICT) -  
– BAS, department of Linguistic Modeling and Knowledge Processing,  
announced in the State Gazette, № 49/21.06.2019

I am presenting this review as a member of the Scientific jury in the above mentioned competition, on the base of the order № 207/16.08.2019 of the Director of IICT-BAS, which is based on the decision of the Scientific Council of IICT (Protokol 7, 10.07.2019).

The only candidate for the competition is Assoc. Prof. Kiril Simov from the department Linguistic Modeling and Knowledge Processing, IICT-BAS.

As a member of the jury I received the following documents:

- CV;
- Copy of diploma for educational and scientific degree “Ph.D.”;
- Certificate of the length of service from IICT;
- List of the scientific publications for the participation in the competition;
- List of citations;
- Abstracts of scientific publications for participation in the competition;
- Copies of publications for participation in the competition;
- Reference to original scientific contributions;
- Certificate for participation in international research projects;
- Certificate for doctoral students, supervised by the candidate;
- Declaration for the absence of plagiarism.

Several additional notes of the relevance of projects in which the applicant is involved were also presented.

### **A short CV**

Kiril Simov graduated from the National High School of Mathematics in 1979. In 1986 he graduated from Sofia University - the Faculty of Mathematics and Mechanics. He defended his Ph.D. thesis on the topic of "Logical means for processing linguistic knowledge in HPSG" in 2006 at the Institute of Mathematics and Informatics - BAS. He has held previous positions at the Central Institute for Software Products and Systems, the Institute of Mathematics and Mechanics, the Coordination Center for Informatics and Computer Engineering at the Bulgarian Academy of Sciences. Since 1995 he has been working at the Institute for Parallel Processing of Information at the Bulgarian Academy of Sciences - now the Institute of Information and Communication Technologies – BAS. He obtained his Habilitation in 2007. Assoc. Prof. Kiril Simov is currently working at IICT in the department of Linguistic Modeling and Knowledge Processing.

### **General presentation of the submitted materials. Compliance with the minimum requirements**

It is clear from the presented documents that Assoc. Prof. Kiril Simov meets the requirements for the occupation of the academic position of "Professor", which are specified in of the Act for the Development of the Academic Staff in the Republic of Bulgaria (Art. 29) and the Rules of the Implementation of the Act for the Development of the Academic Staff in the Republic of Bulgaria:

- He has a Ph.D. degree - PhD thesis on "Logical means for processing linguistic knowledge in Reference Phrase Grammar" (2006).
- He has submitted 8 publications covering the group B requirements. All of them are visible in Scopus, the first 3 are published in editions with SJR. Publications were made after his habilitation.
- He has presented 19 publications that meet the group D requirements. All of them are visible in Scopus, twelve papers are published in journals or series with SJR. The publications were made in the period 2007-2016 and were not presented in previous procedures.
- He has provided a list of 38 citations, all visible in Scopus, which meet the requirements of E group of indicators.
- He has held academic positions for more than 10 years. He also participated as a head of the Bulgarian team in 12 international research projects. He supervised two PhD students who successfully defended in 2018. Thus, he also covers the indicators of the group F.
- There is no identification of plagiarism in his scientific work.

For the position of "Professor" the Regulations for the Special Conditions for Acquisition of Academic Degrees and for Applying for Academic Positions at IICT -

BAS require at least 260 points from criteria in group D instead of 200 points according to the minimal national requirements, respectively 140 points instead of 100 points for indicator E and 150 instead of 100 points for group F. Also, according to the BAS Regulations, these points are obtained with another, lower scoring scheme.

The calculations in the report presented by Assoc. Prof. Kiril Simov are made on the higher criteria of IICT-BAS and show:

Group A - 50 points (threshold 50);

Group B - 0;

Group C - 120 points (100 required);

Group D - 324 points (200 required, 260 - IICT-BAS);

Group E - 228 points (100 required, 140 - IICT-BAS);

Group F - 648 points (100 required, 150 - IICT-BAS).

As it can be seen, the criteria of IICT-BAS have been achieved and exceeded significantly in some of the groups, therefore the minimum national requirements have been reached in accordance with the Rules for the Implementation of the Act on the Development of the Academic Staff in the Republic of Bulgaria for the professional field 4.6 "Informatics and Computer Sciences".

#### **General characteristics of the applicant's scientific and applied activities and his contributions in the submitted for the review publications**

The applicant has submitted 27 publications. All of them are written in English and all are visible in Scopus. The publications were made in the period 2007-2016. Assoc. Prof. Simov co-authors all papers, but this could be expected in the multidisciplinary area in which he works. The obtained results unambiguously present the significant contribution of the applicant. He is also the first author in six of them.

Fifteen of the submitted publications are published in SJR ranked journals and series - publications 1, 2, 3 from the Group C list and publications 1, 2, 3, 5, 9, 10, 11, 12, 13, 16, 17, 19 of publications in the Group D. Some of the publications are also indexed by WoS. For example, articles 3, 5, 8 from the list of publications presented in the Group C and articles 4, 6, 7, 14, 15 from the list of publications presented for the Group D.

The lists of all publications by Assoc. Prof. Simov indexed by Scopus and WoS are far longer and indicate a strong and sustainable publication activity over the years.

The research results, presented in the submitted publications, are related to the development of language and semantic resources and technologies (mainly for the Bulgarian language) and their applications.

The eight publications, presented in group B, concern the application of language and semantic resources and technologies for semantic indexing of learning materials in order to provide a multilingual search.

The main contributions here include the development of the “Ontology-to-Text-Relation” model and a methodology for building domain ontologies. The methodology has been used for the development of domain ontology in the field of information technology for the purposes of e-learning and for the construction of domain ontology in the field of home textiles (mainly in publications 2, 3 4, 5 , 6 from group B). Related to these results is the Bulgarian ontology-based dictionary, described in Publication 7, which has been gradually expanded to 22000 concepts in the Bulgarian WordNet BulTreeBank (BTB-WN).

The publications from group D present results that focus on the creation of language resources and technologies for the Bulgarian language.

Several publications (4, 6, 16) present the work of designing annotation schemes, language resource formats, and procedures for information retrieval to create new language resources. One of the significant results here is the creation of a Political Speech Corpus of Bulgarian.

The combined model for POS tagging, dependency parsing and co-reference resolution for Bulgarian, the design of a system for creating new syntactic analysis based on cumulative analyzes from several statistical parsers, and the algorithm for constructing a semantic sentence representation (by presenting semantics) of a sentence as a structure in Semantics with minimal recursion) are the subject of publications 13, 15 and 3. A few more publications in this group present the work on experiments designed to solve problems as part-of-speech tagging for Bulgarian, recognition and categorization of named entities, parsing, etc.

Two publications (17 and 19) describe algorithms for expanding the knowledge graph. The research results are applicable to different languages.

Research and results in the field of Linked Open Data are presented in several publications - 1, 11 and 12 of group D. They are focused on combining data from different sources.

The presented publications demonstrate consistency and continuity in modeling linguistic knowledge of the Bulgarian language and creating software tools for automatic language processing. Significant work is done for the accumulation of linguistic resources for the Bulgarian language.

### **Citations**

The list of citations submitted by the candidate presents 38 citations for 8 publications, all visible in Scopus. The overall list of the citations, reported by Scopus shows 275 citations from 250 documents, which indicates that the scientific results of the applicant are visible to the research community.

### **Personal impressions**

I know Assoc. Prof. Simov in connection with the work of his Ph.D. student Jens Kohler and I have very good impressions of his supervisor work.

### **Comments and recommendations**

My recommendations would be for Kiril Simov to make more efforts in teaching and working with students, including doctoral students, to share knowledge and skills within his specific interdisciplinary area.

### **Conclusion**

In conclusion, the documents and materials presented by Assoc. Prof. Kiril Ivanov Simov declare significant results that meet all requirements for the academic position "Professor" of the Act of the Development of the Academic Staff of the Republic of Bulgaria, the Rules for its implementation, as well as of the Regulations for the Special Conditions for Acquisition of Academic Degrees and for Applying for Academic Positions at IICT-BAS, and even exceed some of these requirements. I strongly recommend to the Honorable Scientific Jury to vote on a proposal to the Scientific Council of IICT-BAS to select Assoc. Prof. Kiril Simov for the academic position of "Professor" at IICT-BAS in the professional field 4.6. "Informatics and Computer Science".

12.10.2019  
Sofia

Reviewer:

/Prof. Ph.D. K. Kaloyanova/

**NOT FOR  
PUBLIC RELEASE**