EVALUATION STATEMENT

**with regard to a contest for the academic position of Professor
in professional orientation 5.3 'Communication and Computer Equipment'
academic discipline 'Artificial Intelligence', announced in SG, Issue 38 of 10/05/2019
Applicant: Assoc. Prof. Todor Dimitrov Ganchev, PhD**

Scientific Jury Member: Prof. Mihail Petkov Iliev, D. Sc

1. General Characteristics of the Applicant's Scientific and Applied Research

Assoc. Prof. Todor Dimitrov Ganchev, PhD participates in the contest for the academic position of Professor with 50 scientific publications categorized as follows:

- 14 scientific articles in journals: [В4.8, В4.9, В4.10, Г7.3, Г7.4, Г7.5, Г7.6, Г7.9, Г7.10, Г8.1, Г8.2, Г8.4, Г8.5, Г8.15], 9 of which are SCOPUS indexed: [В4.8, В4.9, В4.10, Г7.3, Г7.4, Г7.5, Г7.6, Г7.9, Г7.10].
- 36 publications in scientific conference proceedings, 26 of which are SCOPUS indexed: [В4.1-В4.7, В4.11-В4.13, Г7.1, Г7.2, Г7.7, Г7.8, Г7.11-Г7.22], 7 are in academic paper collections with ISBN identifier: [Г8.3, Г8.7, Г8.8, Г8.9, Г8.11, Г8.12, Г8.13] and 3 are in TU-Varna's yearbook having ISBN identifier: [Г8.6, Г8.10, Г8.14].

7 of the publications are in journals with an impact factor (*Thomson Reuters*) [В4.8, В4.9, В4.10, Г7.3, Г7.4, Г7.5, Г7.10].

10 of the submitted publications within the contest are produced in collaboration with one contributing author, 14 are in collaboration with two authors, 15 are in collaboration with three authors, 8 in collaboration with four authors and the authorship in 3 publications is shared with more than four authors. No appendix has been presented for assignment of authorship in the publications and I have therefore assumed equal authorship for all contributors listed.

Google Scholar website indicates that the applicant's publications have over 2000 citations. A copy of the SCOPUS author citation report has been submitted in accordance with the contest requirements and it shows the applicant's citation counts for other articles indexed within SCOPUS. The list includes citation counts for only 7 of the author's publications [В4.9; В4.10, Г7.5, Г7.8, Г7.9, Г7.12, Г7.18], cited by a total of 152 SCOPUS-indexed articles, earning the applicant 1520 points – a score significantly exceeding the minimum citation requirements.

The applicant's h-index in Google Scholar is 24 and in the SCOPUS database it is 17.

2. Evaluation of the Applicant's Pedagogical Competence and Activities

Assoc. Prof. Todor Dimitrov Ganchev, PhD has worked as a lecturer in the Department of Electronics and Microelectronics at TU-Varna with some interruptions since 1994. He had also worked as a researcher at the University of Patras, Greece for several years during this period. At TU-Varna the applicant has lectured courses in: Artificial Intelligence, Digital Signal Processing, Microprocessor Systems and Microprocessor Engineering in the curricula of students from various fields of study. He had acted as a doctoral advisor for 5 PhD students, two of which successfully defended their theses and were awarded doctorate degrees. The applicant has been a guest lecturer at universities in Greece and Brazil. All in all, it can be concluded that the teaching work and pedagogical activities of Assoc. Prof. Todor Ganchev, PhD are diverse and meaningful.

3. Key Scientific and Applied Research Contributions

The contributions in the applicant's scientific production could be summarized and categorized as follows:

3.1. Methods for Emotion Detection for Machines:
- For recognition of basic types of human emotions, for negative emotion detection and

stress detection based on voice or physiological signals (EEG, ECG, galvanic skin response) [B4.1, B4.2, B4.3, B4.4, B4.6, B4.7, B4.11, B4.13];

- For emotion recognition and interpreting from speech and speech shaped by intensive physical and cognitive stress [B4.8, B4.9, B4.12];
- Spoken or multimodal dialogue systems with dialogue adaptation upon detection of negative emotional states or stress [B4.9, B4.10, B4.12, B4.13];
- Biofeedback methods and systems [B4.9, B4.10, B4.12];
- New resources for scientific and applied research activities [B4.5, B4.8].

3.2. Methods and Tools Enhancing the Creation of Intelligent Human-Machine Interfaces with Improved Functionalities:

- For retrieval of biometric, linguistic and paralinguistic information [Γ7.3, Γ7.7, Γ7.14, Γ7.16, Γ7.17, Γ7.20, Γ7.21, Γ7.22, Γ8.4, Γ8.5, Γ8.13];
- For negative emotion and stress recognition using physiological signals [Γ7.2, Γ8.2, Γ8.6, Γ8.9, Γ8.11, Γ8.12, Γ8.15];
- For improving speech synthesis quality [Γ7.5, Γ7.6, Γ7.9, Γ7.11, Γ7.12, Γ7.13, Γ7.18];
- For hardware implementation of classifiers [Γ7.1, Γ8.1, Γ8.3, Γ8.7, Γ8.10, Γ8.14];
- For creation of intelligent human-machine interfaces or methods for enhancing their noise resistance [Γ7.4, Γ7.8, Γ7.10, Γ7.15, Γ7.19, Γ8.8].

4. Significance of Contributions to Science and Practice

The contributions of Assoc. Prof. Todor Ganchev, PhD are deemed scientifically meaningful, have application in practice and could be classified as follows:

- Enhancing knowledge and systems through formulation and validation of theories and hypotheses in existing scientific areas;
- Formulation of new classifications, algorithms, methods, technologies and gathering supporting facts

5. Critical Remarks and Recommendations

I have no comments to the materials submitted for participation in this contest. I would nevertheless make the following comments and recommendations to the applicant's future work:

- It is recommended that the applicant focus his efforts on publication of a monograph, a book or a textbook outlining his scientific research results and conclusions;
- It is recommended that the applicant seek possibilities for building a team of researchers from various scientific organizations to enable participation in significant local and international projects.

Conclusion

The scientific production submitted for participation in this contest and subject to evaluation greatly exceeds the scientometric requirements outlined in the Act on Academic Staff Development in the Republic of Bulgaria and in the normative documents for taking the academic position of Professor at the Technical University of Varna, both in terms of quantity and quality. Assoc. Prof. Todor Ganchev, PhD has carried out diverse and meaningful research, teaching work and pedagogical activities. He had published articles and papers repeatedly cited in highly-rated scientific journals and forums.

In consideration of the above I would reasonably propose that Assoc. Prof. Todor Dimitrov Ganchev, PhD be selected for the academic position of Professor in Artificial Intelligence, professional orientation 5.3 'Communication and Computer Equipment' at the Technical University of Varna.

09/09/2019

Prof. Mihail Petkov Iliev, D. Sc

2