

SCIENTIFIC OPINION

Regarding a contest for an academic position „Associate Professor“
In professional field 5.2 “Electrical Engineering, Electronics and Automation”
Specialty “Digital signal processing”, published in State Gazette #31/19.04.2022.
with candidate Firgan Nihatov Feradov, assistant professor Eng. PhD
Member of the Scientific Jury: Ivan Borisov Evstatiev, Professor Eng. PhD,
University of Ruse “Angel Kanchev”

1. General characteristics of the applicant's scientific research and implementation activities.

The scientific work of Dr. Firgan Feradov is concentrated in the following fields of theoretical studies: power electronic converters for solar inverters; algorithms for automated design and selection of components and topologies for power electronic converters; studies on the evaluation and visualization of three-dimensional computer mammography and computer tomography, including the creation of databases and the development of algorithms and methodologies; processing of photoplethysmographic signals and recordings of galvanic skin resistance; automated classification of emotional states and cognitive activity from electroencephalographic recordings.

The materials are published as follows: **11** publications referenced in SCOPUS, combined as an equal to a monographic study. It is notable that in **4** of the publications Dr. Feradov is first author. The publications outside of the ones equated to a monograph are **8**, **7** of which are referenced in SCOPUS. Of them **5** are individual publications, and in **2** the candidate is first author.

The implementation activities of the candidate are presented through his participation in the following projects: **4** projects financed through the national budget, connected to the topics of the scientific research in the field of power electronics and design of electronic devices; **2** projects financed by the national budget, **3** projects financed by the national Scientific Research Fund, **1** project financed by the National innovations fund and **2** projects financed by international programs of the EU, connected with topics regarding signal processing, creation of algorithms for the evaluation of medical data.

I consider the scientific research and implementation activities of the candidate to completely cover the requirements for the academic position of Associate Professor.

2. Assessment of the candidate's pedagogical preparation and activities.

Senior assistant Firgan Feradov is working in the department “Electronics and microelectronics” of the Technical University of Varna since 2018 as an assistant and senior assistant. He is teaching lectures and laboratory exercises from the Bachelor degree in the disciplines Digital Signal Processing, Microprocessor systems – part 1, Microprocessor systems – part 2 and Acquisition and processing of biomedical images. He is supervising laboratory exercises in Electronics and Acquisition and processing of biomedical signals. In the masters course Dr. Feradov is teaching lectures and laboratory exercises in Processing of biomedical signals. For the disciplines which the candidate is teaching he has prepared and further developed course materials and laboratory exercises.

The candidate has taken part in the preparation of 3 curriculums for following disciplines: Microprocessor systems – part 1, Testing and verification of electronic devices and Electronic and microprocessor technology.

For the examined period Dr. Feradov has supervised 8 diploma theses and reviewed 12 theses in the Bachelor and Masters courses. He is taking part in the examination committees for the diploma defenses for students in Bachelor and Masters degree courses, he is supervising 1 and 2 year students studying “Electronics” and “Biomedical Electronics”, he is responsible for the department’s administration of the system for remote teaching in the, he is taking part in the administering of the Master degree courses and Bachelor degree with Education in English, on department level, he is a department ERASMUS programme coordinator and is taking active part in activities, organized by the department in regards to presentation of scientific and academic activities of the department to a broader public in relation to the conducted candidate student campaigns.

I consider the pedagogical preparation and activity of the candidate to completely cover the requirements for the academic position of Associate Professor.

3. Basic scientific and applied contributions.

I consider the presented contributions to be scientifically applicable and applied.

Scientifically applicable contributions.

The following can be related to the scientifically applicable contributions:

1. Proposal and study of new solutions based on the selection of appropriate components, increasing of the efficiency of solar inverters [B.4.1].
2. Creation of algorithms for automated design of components and topologies for electronic devices [B.4.7], [B.4.8].
3. Creation and study of databases and algorithms for three-dimensional computer models of tumor formations, used in the field of medical imaging [B.4.3], [B.4.4], [B.4.5], [B.4.6].
4. Developed methodologies and algorithms for processing of photoplethysmographic signals, galvanic skin resistance signals and electroencephalographic signals [B.4.9], [B.4.10], [B.4.11], [Г.7.1], [Г.7.2], [Г.7.3], [Г.7.4], [Г.7.5], [Г.7.6], [Г.7.7], [Г.8.1].

These contributions are characterized with the improvement of existing knowledge.

Applied contributions:

1. Solutions for the control of solar inverters are proposed and studied [B.4.2].
2. Developed software tools [9.3-5].

Methodological contributions:

In relation to the presented documents and references some of the more relevant achievements in the field of educational and pedagogical activities are: participation in the development of lectures and laboratory exercises for the disciplines Digital signal processing, Microprocessor systems – part 1, Microprocessor systems – part 2, Electronics, Acquisition and processing of biomedical images, Acquisition of processing biomedical signals, Processing of biomedical signals; participation in the development of curriculums for the disciplines Microprocessor systems – part 1, Testing and verification of electronic devices and Electronic and microprocessor technology; supervision of 8 diploma theses.

From the presented information it can be seen that regarding this important indicator the presented materials completely correspond and exceed the standard requirements for the position of Associate Professor, when the requirements of the Technical University of Varna and the practice of previous contests is taken into account.

4. Significance of contributions to science and practice.

From the presented materials it can firmly be stated that the contributions are relevant to the development of contemporary science and technology. The quantifiable indicators of the criteria for holding the academic position of Associate Professor are met and exceeded. The author has presented a list of 10 citations referenced and indexed in international renowned databases. All citations are traceable.

All of the above characterizes Dr. Feradov as an acknowledged and established scientist.

5. Critical notes and recommendations.

I do not have any critical notes regarding Dr. Feradov. My recommendations for his future development – on the basis of the created scientific potential, a team to be formed and the work on the examined topics to continue.

CONCLUSIONS

Taking into account the presented 19 publications, 18 of which referenced in SCOPUS, 11 of which are combined as an equal to a monographic study, containing the required scientifically applicable and applied contributions, 10 citations in publications referenced and indexed in international renowned databases, the participation in 12 projects and the educational activities, I find it reasonable **to propose senior assistant PhD Eng. Firgan Nihatov Feradov** to take the academic position of “Associate Professor” in professional field 5.2 “Electrical Engineering, Electronics and Automation”, Specialty “Digital signal processing”.

14.08.2022г.

MEMBER OF THE SCIENTIFIC JURY:

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/Prof. Dr.  Evstatiev/