REVIEW

Of concourse for gaining academic degree "Associate Professor" in professional dividion 5.3 TS "Electrical engineering, Electronic and Automation" scientific discipline " Robots and manipulators in IICT BAS, published in ДВ # 41 form 21.05.2019,

candidate: eng. Nayden Nedkov Shivarov, PhD

Jury member: Assoc. Prof. dr. Tony Boyadjiev

1. *Candidate's overview and data*

Dr. eng. Nayden Nedkov Shivarov is born on 27.10.2973. He graduates in Mechanization of forest industry from the University of Forestry of Sofia in 1997. Acquires "Doctor" title after PhD graduation in the prestigious Institute of Robotics of Vienna, Austria with Prof. Peter Kopachek as tutor. He is accepted in IR-BAS from 01.07.2010. In 2012 he is elected as associate professor. He is also elected as associate professor and leader of European Polytechnical University (EPU) – Pernik. He is currently a programmer in IICT – BAS.

2. *Main discription over the materials provided for participation in the procedure*

The candidate has presented 42 science publications. Most of the publications are related to research, simulations and optimization of robotics systems. Group A give 50 points, group B - 106 points, group C – 224,4 points, group D – 62 points and group E – 50 points.

Most of his work is published in domestic science repertory – 17 pcs; scientific repertory abroad – 10 pcs; domestic scientific magazines – 5 pcs; scientific magazines abroad – 3 pcs. They are part of the science competition. There are 7 quotations. Author's reference in science contribution is eight pages.

Analysis of the presented materials shows that the necessary criteria has been met.

3. *Main overview of candidate's scientific and scientifically-applied work*

The candidate has broad scientifically – applied experience. He has participated in five scientifically – applied developments, three of which he has lead, also financed by Bulgarian sources. He has been a deputy leader of a multinational financed project, part of 7th Professional program. All developments are part of the scientific specialty of the announced competition. He has a registration of a patented model: 2056 – Autonomous Personal Service Mobile Robot. As a PhD and leader of a European Polytechnic University laboratory, he is involved with tuition, science labor, graduation students and assistant professors leadership, national and multinational science projects. He has participated in organization of multiple conferences, seminars and forums with multinational participation of highest level.

4. *Main scientific and scientifically-applied contributions*

Overview of candidate's main scientific and scientifically-applied work
In his author's summary the candidate has pointed out the most important scientific and scientifically-applied results and achievements in ten points, but essentially they could be grouped in the following order:

- Research, development and study of service robots; service robot ROBKO 18 to help and support elderly people and people with disabilities; radio-controlled service robot ROBKO 17; an internet-controlled modularized service robot ROBKO 12; an inteligent internet-controlled modularized mobile service robot for help and elderly people support ROBKO 11;
- Broadening and development of the ROBKO educative robot family; Newly developed Educative Robot "ROBKO Phoenix" , modernized Educative Robot "ROBKO Scara" .
- Research and development of user interface: web-based user interface for of elderly people and people with disabilities robot control through different devices (such as PC, Notebook, Tablet or Phone); Graphical user interface for multifunction shadow robot control to help and support life of solitary elderly people through touch screen interface.
- research, development and analysis of mobile mini robot "ROBKO Mobile" which plays football.

Hereby I accept all the brought contribution, and I positively evaluate it. I consider satisfying the volume and quality of the scientific and scientifically-applied work. It meets the requirements of the „ЗРАСРБ", so are the rules and requirement of its purpose. BAS's content and requirements for gaining academic title "Associate Professor" are fulfilled.

5. *Notes and recommendations*

I don't have crutial notes, regarding the main scientific and scientifically-applied contributions of the candidate. The overal formating of the documents doesn't have major misses and it does not lack thoroughness.

The existing results and the importance of the problems give me the opportunity to make a recommendation to the candidate to make more genuine publicaions in refered foreign journals, particularly in international journals with Impact factor.

6. *Personal impression*

I personally know d-r Shivarov for few years now. He is a deep-thinking and precise scientist with responsible organisatizational and realisation skills with proven abilities. He has skills to team work and an ability of building creative environment capable of knowledge and experience sharing.

Personally speaking he is precise, delicate and serious, considering the normal people interactions.

CONCLUSION

According to the materials provided and my personal impression of the candidate's scientific activity, the actuality and the importance of his scientific and scientifically-appled contributions, ***I strongly recommend Dr. eng. Nayden Nedkov Shivarov to acquire academic degree " Associate Professor"*** *in professional dividion 5.3 TS "Electrical engineering, Electronic and Automation" scientific discipline " Robots and manipulators" in IICT BAS.*

Reviewer:

/ Assoc. Prof. dr. Tony Boyadjiev /

05.09.2019
Sofia