

## T.C. **DOĞUŞ ÜNİVERSİTESİ** MÜHENDİSLİK FAKÜLTESİ

Departments of Computer and of Software and Information Engineering

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Intelligent Computing, Control & Robotic Systems



To Whom It May Concern

Prof. Dr. Georgi M. Dimirovski – A Brief Professional CV

- Georgi Marko Dimirovski was born on 20.12.1941 in Greece, in village Nestorion - Nestram (in Slavic Macedonian) in Aegean Macedonia. Currently, he is a Research Professor (life time; retired) of Automation & Systems Engineering at the University St. Cyril and St. Methodius of Skopje, Republic of Macedonia, and also, as a foreign professor, he is Guest Professor of Computer Science & Information Technologies at Dogus University of Istanbul, Turkish Republic. In his home country, according to the Law on Higher Education, he is authorized only to teach at the doctoral studies (third cycle) and to supervise doctoral students at the School of Electrical Engineering & Information Technologies, one of the schools with St. Cyril and St. Methodius University. In this capacity, he is responsible for doctoral graduate courses entitled (i) dynamic graphs and complex systems control as well as (ii) switched systems and their control.

In December 2917, Dr Georgi M. Dimirovski was elected and promoted to an Academician of the International Academy of Systems and Cybernetic Sciences; seat in Saint Etienne-du-Rouvray, R. France. In March 2016, Dr Georgi M. Dimirovski was promoted to an ordinary Member of the European Academy of Sciences in the class of Technical Sciences; seat in Salzburg, F. R. Austria. And earlier, in May 2004, he was elected a Foreign Member of the Academy of Engineering Sciences of Serbia, seat in Belgrade, R. Serbia.

Georgi Dimirovski served as an invited guest-professor on the graduate studies at Istanbul Technical University (ITU Aeronautical Engineering), a part-time teaching, since spring semester of the year 2004 till fall 2016. At the ITU he has developed a graduate course especially designed for doctoral and master students in Aerospace Science & Engineering focused on selected topics of optimal control theory and aerospace applications. During time period 2007-2013, he was a guest-professor at Dokuz Eylul University of Izmir (Mechatronics Engineering) too, where he developed graduate courses on fuzzy-system computer control and on sliding-mode control for mechatronic and robotic applications.

In the year 2011, Georgi M. Dimirovski was awarded honorary 'Pro Universitas' Professor of Obuda University in Budapest, R. Hungary. Since then he was also included in the academic staff of the Doctoral School (according to the age limit by the law in Hungary), with responsibility for the area of switched fuzzy-system theory and switching-based control. Similarly, he was awarded a title "Guest Professor" by South Chinese University of Science & Technology of Shanghai in the P. R. of China from June 2014 till May 2017. Furthermore since the year 2011 till 2016, he has been teaching on

Summer Graduate Schools at either of the universities of science and technology in cities of Dalian, Nanjing, Shanghai, and Shenyang in P. R. China. These summer school lectures are based on graduate courses he has developed in due times in his home country Macedonia and in Turkey too.

He received in 1977 his degree "PhD by Research" in Automatic Control from the University of Bradford in, Bradford, England, United Kingdom for his research carried at the then Postgraduate School of Control Engineering. He has obtained in 1966 his Dipl.-Ing. degree in Electrical Engineering from St. Cyril & St. Methodius University of Skopje, Macedonia, and in the year 1974 his M.Sc. degree in Electrical & Electronic Engineering from the University of Belgrade, Serbia – then both were within the former S.F.R. of Yugoslavia. As a young engineer, after the graduation, Dimirovski spent first 3 years in the industry before joining the academia as a junior research and teaching assistant in Engineering Cybernetics at the nowadays Faculty (School) of Electrical Engineering & Information Technologies (FEIT) of St. Cyril & St. Methodius University, in March 1969. Subsequently, in June 1974 he was promoted to Assistant Professor, then in June 1980 to Associate Professor, and then in June 1985 he was elected to the rank of Professor with tenure. Then he was also authorized to establish the Institute of Automation & Systems Engineering (IASI) and a relevant Laboratory of Automatic Control within this institute. In January 2000, by his own will, he resigned from being the Head of IASI and then rather he focused on his scientific research and international academic co-operation. Dr Georgi Dimirovski, in academic status of a Research Professor authorized for doctoral students, reached his formal retirement in Macedonia in December 2006. However, he continued being active on his academic position at Dogus University of Istanbul, Turkey, up to the present days.

In September 1985, finally Georgi Dimirovski managed the foundation of the Institute of Automation & Systems Engineering at the then Faculty of Electrical Engineering (now the Faculty of Electrical Engineering and Information Technologies, FEIT) of St. Cyril & St. Methodius University, after a couple of unsuccessful initiatives before the relevant authorities and enforcing a long debate. In due times, Professor Dimirovski has developed a number of undergraduate and/or graduate courses in control and automation as well as others in robotics, in applied numerical, fuzzy-system and neuralnetwork computing, and in operations research too, at his home university and at universities in Bradford, Istanbul, Izmir, Linz, and Zagreb, respectively.

At the University of Bradford, Georgi Dimirovski has held a postdoctoral position in 1979 at the Postgraduate School of Control Engineering under the supervision of his mentor Prof. Dr. Stephen Barnett and Prof. Dr. Maurice G. Mylroi, Head of the School. Subsequently, he was a Research Fellow and Visiting Professor in 1984, 1986 and 1988, respectively, spending summers in Bradford while finalizing there his collaborative research with Dr. R. Malcolm Henry and his respective doctoral students. Also, he has been a Visiting Scientist to Wolverhampton University in the 1990 and the 1992, thus there finalizing his collaborative research with Prof. Dr. Norman E. Gough and several doctoral students that he advised.

In the year 1994, Prof. Dr. Dimirovski was a Senior Research Fellow & Visiting Professor of the Free University of Brussels, Belgium, following the award of the grant "Research in Brussels" by the Ministry of Brussels Capital. His nominator and host was Prof. dr. ir. Raymond Hanus, then the head of the ULB Laboratory of Automatic Control & Systems Analysis, together with whom they carried collaborative research out. In the year 2000, Prof. Dimirovski was a Senior Research Fellow & Visiting Professor of Johannes Kepler University of Linz, Austria, following the award of a grant for "Visiting Professorship" by Austrian Federal Ministry of Higher Education. O.Prof. Dr.-Ing. Kurt Schlacher, then head of the Institute of Automatic Control, was his nominator and host with whom together they carried out collaborative research there. At the same time, there he was teaching two elective courses for doctoral and master students there.

During the last three decades, Georgi M. Dimirovski has paid longer- or shorter-term academic visits with seminars to universities in: Aalborg, Ankara, Belgrade, Bradford, Bochum, Brussels, Coimbra, Covilha, Duisburg, Grenoble, Hannover, Istanbul, Izmir, Linz, Lisbon, Ljubljana, London, Maribor, Nis, Portsmouth, Sarajevo, Sevastopol, Sofia, Split, Titograd (now Podgorica), Valencia, Wien, Wolverhampton, Zagreb and Kaohsiung (TW), Beijing, Dalian, Nanjing, Shanghai and Shenyang

(CN). He participated into the macro-project and served on the Steering Committee of the Scientific Programme on Control of Complex Systems (COSY) 1995-99, sponsored by European Science Foundation (ESF), under the leadership of Prof. Dr.-Ing. Karl J. Astroem and Prof. Dr.-Ing. Manfred Thoma. During a couple of previous years, while he was serving on the ESF Executive Council, it were Professor Dimirovski who was instrumental for the acceptance and launching the ESF COSY 1995-99 within the framework towards timely fundamental research in Technical Sciences he worked out along with his ESF ad-hock group. Thus he was invited to participate into COSY 1995-99 along with his postdoctoral research fellow and 4 graduate students, which enabled continuation of his international and scientific activities during that period of civil wars in former S. F. R. of Yugoslavia.

To date, Professor Dimirovski has successfully supervised research projects of 3 postdoctoral fellows, 16 PhD students, and 29 MSc students as well as more than 350 graduation projects by undergraduate students. Furthermore, during the past 25 years he has advised more than 80 graduate students at universities abroad where he used to have and where still has his international academic co-operation. Among these graduate students more than 50 were doctoral students at the Northeastern EU of Shenyang within the framework of his academic co-operation with Prof. Yuanwei Jing and Prof. Jun Zhao there. He served on PhD evaluation juries and/or panels for several universities including Bradford and Wolverhampton in the UK, Izmir in Turkey, Ljubljana in Slovenia, Chennai in India, Zagreb in Croatia, Sofia and Varna in Bulgaria, and Craiova in Romania.

Dr Dimirovski was the editor of six (6) proceedings volumes of the IFAC series and of two (2) volumes of the IEEE Series, for which he served as the technical program chair respectively. Internationally, he has contributed the following works: one research monograph he edited for Springer International, seven monograph chapters of invited theme papers, and more than 100 journal articles. In addition, he has contributed more than 350 conference papers that appeared in the international proceedings series of the IFAC and the IEEE organizations alone.

Dr Dimirovski now, as an Associate Editor, he serves the Editorial Boards of Journal of the Franklin Institute (The FI, USA), Asian Journal of Control (Wiley, TW), and IEEE Transactions on Systems, Man, and Cybernetics Pt. Computational Social Systems. Also, he reviews regularly for a number of archival journals refereed in the lists of SCI and SCI-Expanded. Before, he has been serving as an Associate Editor (AE) of the following journals: the IEEE Transactions on Systems, Man & Cybernetics (The IEEE, USA); the International Journal of Automation & Computing (CAS, CN); the Proceedings of the Institution of Mechanical Engineers Pt. I Systems & Control Engineering (Institution Mechanical Engineers, UK); the Facta Universitatis – Journal of Electronics & Energetics (University of Nis, RS); Journal of Electrical & Electronics Engineering (University of Istanbul, TR); the Information Technologies & Control Engineering (Bulgarian Union of Automation and Informatics, Sofia); the Journal of Control Engineering & Applied Informatics (SRAIT, RO); Automatika (former S.F.R. of Yugoslavia); and also he was Editor-in-Chief of Journal of Engineering (Skopje, MK). In addition, Georgi Dimirovski served as an AE on the Technical Program Committees of the international Chinese Control Conferences of the Technical Committee on Theory of the Chinese Association of Automation as well as of Chinese Decision and Control Conferences.

In due times, Professor Dimirovski was awarded grants for 5 national projects in automation and control of industrial processes, and for 2 national projects in complex decision and control systems by the Ministry of Education and Science of the Republic of Macedonia. In addition, he has organized and coordinated several applications oriented research and research-development projects, in industrial automation systems, on one hand, and on the other, in certain visionary program proposals for improving graduate education and research in his home country.

Recently in 2012-2013, as the scientific advisor to Turkish research team, Dr Georgi Dimirovski has participated into a joint Russian-Turkish scientific co-operation in aerospace coordinated by Dr Cingiz Hajiyev, Professor of Aerospace Control at Istanbul technical University (Turkey), and Dr Yevgeniy Somov, Professor of Aerospace Control at Samara State Technical University (Russia). The project was aimed at as it entitled "Development of Methods and Algorithms for Integrated Attitude Determination Systems with Inflight Sensor, Calibration, Long-term Planning Guidance, and Fault-tolerant Attitude Control for small Information Satellites". Prior to this international project, during

2008-2009, Dr Dimirovski has been one of the two coordinators of a joint Chinese-Macedonian cooperation project entitled "Problems of Advanced Control in Hybrid and Network Systems", on behalf of Macedonian team at FEIT, St Cyril and St Methodius University of Skopje. The coordinator on behalf of Chinese team was Dr Jun Zhao, Professor of Systems and Information Engineering at Northeastern University, Shenyang, P. R. of China.

During the academic year 1979/1980, Dr Georgi Dimirovski has initiated the creation of a learned engineering society in the Republic of Macedonia dedicated to fields of information and signal based sciences and technologies of electronics, telecommunications, automatic control, computing and informatics. Along with a small group of enthusiastic academic colleagues and practicing engineers from industry, who embraced his vision for the new society, he has gathered and chaired the Founding General Assembly in June 1980 thus organized the Society for Electronics, Telecommunications, Automation and Informatics (ETAI Society). Then also he was elected as the first president and his closest collaborating followers as members of the first Board of ETAI Society. Subsequently, along with the Board, he carried the rest of the needed legal activities and in January 1981 finally the ETAI Society was registered as a learned and professional society in Macedonia, and then also in Yugoslavia with its status then of member-organization within Yugoslav Association for Electronics, Telecommunications, Automatic Control, Computer Engineering and New Technologies, ETAN (it was re-named and nowadays is known as ETRAN Society of Serbia).

The ETAN was Yugoslav National Member Organization (NMO) of the International Federation of Automatic Control (IFAC; Secretariat Office in Laxenburg, Austria) since the 1<sup>st</sup> World Congress in 1960 but, for some reason, it appeared dropped out during the late 1970-ties. Dr Georgi Dimirovski, upon his first election as the President of the Yugoslav Association ETAN in June 1986, has undertaken and accomplished the mission to renew the ETAN's membership in the IFAC. His mission was finalized at the IFAC General Assembly in July 1987, during the 10<sup>th</sup> World Congress in Munich, Germany. Subsequently, Georgi Dimirovski was re-elected as the president of Yugoslav Association for ETAN and served three terms.

During this same period, in his home republic of Macedonia, Dr Dimirovski served several terms as the president of the ETAI Society, which included the decade period of tragic civil wars in the former S.F.R. of Yugoslavia towards the days of its final collapse. It was in this period, in July 1993, when Georgi Dimirovski has led the ETAI Society of Macedonia within the International Federation of Automatic Control during the 12<sup>th</sup> World Congress in Sydney, Australia. Namely, the 1993 General Assembly of the IFAC formally voted for the ETAI Society and it was admitted to become Macedonian NMO of the IFAC. ETAI Society holds this status up to nowadays under several new generations of its leaders.

Dr. Georgi Dimirovski has served the International Federation of Automatic Control in various capacities during more than two decades and until the 2011 IFAC World Congress in Milano, Italy. In particular, he has served the IFAC in capacities of: Vice-Chair of TC 9.3 on Developing Countries, during 1996-2002, and of Chair during 2002-2005; Chair of Coordination Committee CC9 and Technical Board Member of the IFAC (TB) during 2005-2011. He has served on the IPC's for many IFAC, IEEE, ECC and WAC conferences, and for other conferences too. He was Co-Chairman of the IFAC SWIIS 2000 and of the IFAC DECOM-TT 2001, 2003, 2004, and 2007, and of the IFAC CEFIS 2007 as well as the Technical Program Chair of the IEEE SMC-2010 and IEEE CCA-2003, and also of the 1993 and 2003 ETAI International Symposia on Applied Automatic Systems (AAS). Georgi Dimirovski has been an invited plenary speaker to a number of IFAC, ETAI and IEEE international conferences too, the ones that were held in several European countries.

In due time following the end of his last term in the ETAI office, Prof. Georgi Dimirovski was elected President of the Institution of Engineering-Scientific Societies of Macedonia and served two terms during the troublesome period of 1994-1997. Thus he has led the Institution through the process of appropriate re-organization and renewal to take the national place instead of the previously existing association. In this particular capacity, Dr Dimirovski has joined Dr Goce Arsov in founding the IEEE Republic of Macedonia Section in 1996. Similarly, during his first year as a visiting professor in

Istanbul, Dr Dimirovski in 2002 has joined Dr Okyay Kaynak, Professor of Mechatronics at Bogazici University of Istanbul, in founding the IEEE Computational Intelligence Chapter of Turkey too.

In due times in the past, Dr. Georgi Dimirovski has received two Best Paper Awards of Yugoslav Association ETAN for conference papers: the 1974 in Automatic Control, and the 1991 in Robotics & Automation. Recently, in the year 2016, he has received Best Paper Award of the IEEE International Conference on Intelligent Systems in the session-track "Intelligent Control and Optimization".

In the year 2003, in Skopje, the ETAI Society has awarded Georgi Dimirovski with the ETAI Merits Award. Similarly in the year 2006, in Belgrade, the present day ETRAN Society of Serbia has awarded him with the ETAN/ETRAN Meritorious Member Award.

In November 2009, Prof. Dr. Georgi M. Dimirovski along with his colleagues Dr King-Qui Li and Prof. Dr. Jun Zhao received the 2009 IET Premium Award from the UK Institution of Engineering & Technology. This award was received for their best article of the journal IET Control Theory & Applications that was published in June issue of year 2008.

In July 2011, Georgi M. Dimirovski received the IFAC Outstanding Service Award from the IFAC Organization during the 18<sup>th</sup> World Congress in Milano, Italy. Then, for the IFAC World Congress 2011, also he was one of the congress editors of the published preprints and proceedings.

In July 2012, Georgi M. Dimirovski has received the award of the Outstanding Associate Editor 2011 of the International Journal of Automation & Computing (IJAC), which is given by jointly the Board of the IJAC and the publisher Springer.

In January 2017 he was awarded 'Life Senior Member' by the IEEE Organization. Subsequently in July 2017 he received a special recognition award from the IEEE President 2017 on the occasion of the 20<sup>th</sup> Anniversary of the Republic of Macedonia IEEE Section.

Currently, his research interests are focused on complex dynamic networks and systems as well as on fuzzy-logic and neural-network topics of computational intelligence. These research interests are well highlighted by the following Springer monograph: Georgi M. Dimirovski, Editor, *Complex Systems: Relationships between Control, Communications and Computing*, Studies in Systems, Decision and Control Volume 55. Springer International Publishing AG, Cham, Switzerland, May 2016. His publications, up to now and at present, have received the following evaluations: in Scopus (Elsevier, NL) 2,153 citations along with h-index 22 for the 319 tittles included; in Web-of-Science (Thomson Reuters, USA) in Core Database 1,252 citations with h-index 18 for the 250 tittles included as well as 1,363 citations along with h-index 18 for his 260 titles in All Databases; and in Google Scholar (USA) 3,243 citations along with h-index 25 for more than 520 tittles included; finally, there appear more than 17,000 citations of his works in Mendelay (Elsevier, NL). *Sept.* 

Respectfully yours,

Georgi M. Dimirovski

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