Preface

Special Issue Dedicated to the 75th Birthday of Professor Imre J. Rudas

It is with great pleasure and admiration that we introduce this special issue of journal Acta Polytechnica Hungarica, dedicated to celebrating the remarkable achievements of Professor Imre J. Rudas on the occasion of his 75th birthday. Throughout his illustrious career, Professor Rudas has left an indelible mark on the field of science and engineering, shaping the landscape of research and innovation through his pioneering work and unwavering commitment to excellence.

As we honor Professor Rudas's remarkable journey, it is impossible not to be captivated by the breadth and depth of his contributions. From his groundbreaking research in control theory and automation to his pivotal role in fostering international collaboration and knowledge exchange, Professor Rudas has consistently demonstrated a rare blend of intellectual prowess, creativity, and passion for advancing the frontiers of knowledge.

This special issue serves as a testament to Professor Rudas's enduring legacy, featuring a collection of original research articles, reviews, and perspectives that reflect the diverse spectrum of his scientific interests and influences. Many of these articles have been presented at the IEEE 18th International Symposium on Applied Computational Intelligence and Informatics (SACI 2024), also dedicated to Professor Rudas. Spanning topics ranging from intelligent systems and robotics to Cyber-Physical Systems and beyond, the contributions showcased herein underscore Professor Rudas' profound impact on shaping the trajectory of scientific inquiry and technological innovation.

Moreover, this special issue provides a platform for colleagues, collaborators, and students of Professor Rudas to pay tribute to his mentorship, guidance, and profound influence on their academic and professional journeys. Through these reflections and testimonials, we gain invaluable insights into the personal and professional attributes that have made Professor Rudas not only a towering figure in the academic community but also a cherished mentor and friend to many.

Imre J. Rudas graduated from Bánki Donát Polytechnic (Budapest) in 1971, received MSc. in mathematics from Eötvös Lóránd University (Budapest) and received PhD in robotics from the Hungarian Academy of Sciences in 1987. Achieved the Doctor of Science degree at the Hungarian Academy of Sciences in 2004. He received his first Doctor Honoris Causa degree from the Technical University of Košice (Slovakia, 2001), followed by the “Politehnica” University of

Timişoara (Romania) in 2005, Óbuda University (Hungary, 2014) and the Slovak University of Technology (Bratislava) in 2016. He is Honorary Professor (2013) and Ambassador (2016) of the Technical University of Wrocław (Poland). His research activity is related to robotics, computational cybernetics with special emphasis on robot control, soft computing, computer-aided process planning, and fuzzy control and fuzzy sets. He has written more than 900 scientific publications, 150 journal papers, and authored 4 scientific books and edited dozen others. The number of his independent citations is over 8000, with h-index of 44. He served as Rector of Budapest Tech from August 1, 2003 and became the founding Rector of Óbuda University in 2010 and occupied this position until 2014. He founded the University Research and Innovation Center (EKIK) of Óbuda University in 2012 and the Acta Polytechnica Hungarica journal in 2004, where he still serves as honorary editor-in-chief.

He has a rich history with IEEE as well, started in 1991. He became member of the IEEE Board of Directors Section/Chapter Support Committee in 1998, IEEE Fellow in 2001 and Life Fellow in 2020. He was mainly active in two IEEE Societies: in the IEEE Industrial Electronics Society he was Administrative Committee Member and Senior Member (1996) and Vice-President (2000-2001). However, presenting even bigger devotion to the IEEE System, Man and Cybernetics Society, he was several times member of the Board of Governors (2007-2009, 2012, 2014), Vice-President (2013-2016), and then President (2020-2021). Now he serves as the senior past president of the SMC Society (2024). He is the founding chair of the Computational Cybernetics Technical Committee and co-chair of the Cyber-Medical Systems Technical Committee of the IEEE SMC Society. In the meantime, Imre J. Rudas served and made his footprint in the IEEE Hungary Section as well, where he was first Treasurer (1994-1998), then Vice Chair (2003-2009), and finally Chair (2009-2013). He was founding chair at IEEE Hungary Section level of the IEEE Chapter of Computational Intelligence Society (2003-2008), IEEE Chapter of System, Man and Cybernetics Society (2003-2008), and IEEE Joint Chapter of Industrial Electronics and Robotics & Automation Societies (1997-2002).

Among the several scientific awards received, he is laureate of the John von Neumann Award (2006), the Dennis Gábor Award (2006), the civil division of the Hungarian Order of Merit (2009), the Pro Óbuda Award (2014), the International Fuzzy System Association Fellow (2016) and first awardee of the Rudolf Kalman Professor title given jointly by IEEE Hungary Section and Óbuda University (2017). He received Medallion of the Technical University of Kosice (2019), Aurel Vlaicu Plaquette of the Aurel Vlaicu University, Arad (2019), Platinum Plaquette of Faculty of Mechanical Engineering, Kosice Technical University (2019), and the SMC Technical Committee Award to Committee of Computational Cybernetics as well.

As we celebrate the 75th birthday of Professor Imre J. Rudas, let us not only applaud his past achievements but also look forward to the continued inspiration and guidance he undoubtedly provides to future generations of scientists and engineers.

May this special issue stand as a fitting tribute to a visionary leader, a distinguished scholar, a Rector Emeritus, and a beloved mentor, whose contributions will continue to resonate for years to come.

The editors are grateful to Imre J. Rudas for all his achievements, care, and support and thankful to the authors for their excellent work composing this volume.

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