



From Aristoteles to AI Today

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ABSTRACT

Artificial Intelligence (AI) has gone a long way in its development. It is currently one of the most promising direction for science and technology in the future. One cannot appreciate the current success of AI without understanding its roots and main principles, some of them being around for centuries. Aristoteles (4 century BC) is perhaps the first who introduced logic systems and *epistemology* as scientific discipline for knowledge discovery. Lotfi Zadeh introduced *fuzzy logic* to represent uncertainty in knowledge and later he introduced *soft computing* to embrace many methods which can deal with learning and knowledge representation, including fuzzy logic, evolutionary computation and neural networks. This talk presents briefly the history of AI, before it introduces the latest development of brain-inspired neural networks, also called cognitive- or neuromorphic computation and their numerous applications for AI, supported by original work of the author [1, 2]. This progress has not been possible without the fast development of computer platforms, from Ada Lovelace and Babbage mechanical device, to the von Neumann- and neuromorphic computers. At the end, the author talks about the challenges for AI in the future and presents briefly his view.

[1] N. Kasabov (2018) Time-Space, Spiking Neural Networks and Brain-Inspired Artificial Intelligence, Springer, 750 pp, <https://www.springer.com/gp/book/9783662577134>

[2] N.Kasabov (ed) (2014) Springer Handbook of Bio-/Neuroinformatics, 1200 pp, Springer.

Biodata:

Professor Nikola Kasabov is Fellow of IEEE, Fellow of the Royal Society of New Zealand, DVF of the Royal Academy of Engineering, UK and the Scottish Computer Association. He is the Director of the Knowledge Engineering and Discovery Research Institute (KEDRI), Auckland and Professor at the School of Engineering, Computing and Mathematical Sciences at Auckland University of Technology. Kasabov is the President of the Asia Pacific Neural Network Society (APNNS) for 2019. He is Past President of the International Neural Network Society (INNS) and APNNS. He is member of several technical committees of IEEE Computational Intelligence Society and Distinguished Lecturer of IEEE (2012-2014). He is Editor of Springer Handbook of Bio-Neuroinformatics, Springer Series of Bio-and Neurosystems and Springer journal Evolving Systems. He is Associate Editor of several journals, including Neural Networks, IEEE TrNN, -Tr CDS, Information Sciences, Applied Soft Computing. Kasabov holds MSc and PhD from TU Sofia, Bulgaria. His main research interests are in the areas of neural networks, intelligent information systems, soft computing, bioinformatics, neuroinformatics. He has published more than 620 publications. He has extensive academic experience at various academic and research organisations in Europe and Asia, including: TU Sofia Bulgaria; University of Essex UK; University of Otago, NZ; Advisory Professor at Shanghai Jiao Tong University, Visiting Professor at ETH/University of Zurich and Robert Gordon University UK. Prof. Kasabov has received a number of awards, among them: *Doctor Honoris Causa* from Obuda University, Budapest; INNS Ada Lovelace Meritorious Service Award; NN Best Paper Award; APNNA ‘Outstanding Achievements Award’; INNS Gabor Award for ‘Outstanding contributions to engineering applications of neural networks’; EU Marie Curie Fellowship; Bayer Science Innovation Award; APNNA Excellent Service Award; RSNZ Science and Technology Medal; 2015 AUT Medal; Honorable Member of the Bulgarian Academic Society for Computer Science and others. More information of Prof. Kasabov can be found on the KEDRI web site: <http://www.kedri.aut.ac.nz>.