

MINI SYMPOSIUM

2026



Professor Nikola K Kasabov is a Life Fellow of IEEE, Fellow of the Royal Society of New Zealand, Fellow of the INNS College of Fellows, DVF of the Royal Academy of Engineering UK. He has Doctor Honoris Causa from Obuda University, Budapest. He is the Founding Director of KEDRI and Professor Emeritus at the School of Engineering, Computing and Mathematical Sciences at Auckland University of Technology, New Zealand. He is also Visiting Professor at the Institute for Information and Communication Technologies of the Bulgarian Academy of Sciences and Dalian University, China. Kasabov is Director of Knowledgeengineering.ai and member of the advisory board of Conscium.com. Kasabov is Past President of the Asia Pacific Neural Network Society (APNNS) and the International Neural Network Society (INNS). He has been a chair and a 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, EiC of Springer Series of Bio-and Neuro-systems and co-EiC of the Springer journal Evolving Systems. He is Associate Editor of several other journals. Kasabov holds MSc in computer engineering and PhD in mathematics from TU Sofia. His main research interests are in the areas of neural networks, intelligent information systems, soft computing, neuroinformatics, spiking neural networks. He has published more than 700 publications, highly cited internationally.

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; Shanghai Jiao Tong University and CASIA Beijing; ETH/University of Zurich. Kasabov has received a number of awards, among them: INNS Ada Lovelace Meritorious Service Award; NN journal 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 NZ Medal; Medal "Bacho Kiro" and Honorary Citizen of Pavlikeni, Bulgaria; Honorary Member of the Bulgarian-, the Greek- and the Scottish Societies for Computer Science. More information of Prof. Kasabov can be found on: <https://academics.aut.ac.nz/nkasabov> and on <https://knowledgeengineering.ai>.

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Brain Inspired Computation for Generative-, Predictive-, Agentic AI and AGI: Methods, Systems, Applications

Brain-inspired computation, such spiking neural networks (SNN) and neuromorphic systems, has proved its efficiency in their minimal power consumption and massive parallelism, due to their sparse spike-based/event-based information processing [1, 2]. They can learn and adapt continuously from data to capture both time and space in their dynamic interaction and provide model interpretability and data explainability [1, 2]. The talk presents how these techniques can be used to build more efficient Generative, Predictive, Agentic AI and AGI. Generative AI, such as LLM, generate new information based on pretrained neural network models on stored data. Predictive AI take into account most recent data to predict events in a future time. Agentic AI relates to the design of AI agents that are autonomous entities, able to evolve itself from data, make decisions, take actions, adapt to the environment, communicate with other agents. AGI are AI systems aiming to achieving human-like intelligence. Along with the principles of SNN [1] and of one exemplar brain-inspired SNN architecture NeuCube [2], the talk presents an analysis of how the main types of contemporary AI can benefit from their use. Compelling examples are presented for: modelling neuroimaging data; early prediction of brain abnormalities; brain-machine interfaces for paralysed people; predicting environmental disasters; robotics; machine consciousness. Future directions, such as integration of brain-inspired and quantum computation are discussed [3] along with some currently EU funded projects in the field.