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Bio-inspired artificial intelligence with applications to various robotic systems

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Studies of biologically inspired artificial intelligence have made significant progress in both understanding the biological systems and developing innovative bionic applications to diversified robotic systems for information acquisition, signal processing, data analysis, decision making, and system control. In this talk, I will start with a very brief introduction to some biologically inspired intelligent computations and their applications to early vision and sensory motion in biological systems. After that, I will focus on our recent works on innovative applications of bio-inspired artificial intelligence to various robotic systems, such as real-time intelligent sensing, path planning, tracking, control, and teleoperation of autonomous robotic systems including mobile robots, water surface robots, underwater robots, and unmanned aerial robots; intelligent real-time monitoring and control of livestock odors using novel robotic e-noses; intelligent robotic system for real-time harvesting of agricultural products; and intelligent real-time coordination and cooperation of multi-robot systems.

Chinese Academy of Sciences, Beijing, China in 1990, the second M.Sc. degree in electrical engineering from the University of Houston, USA in 1996, and the Ph.D. degree in electrical and computer engineering from the University of Alberta, Edmonton, Canada in 1999. He joined the School of Engineering at the University of Guelph, Canada in 1999. Currently he is a Professor and the Head of the Advanced Robotics & Intelligent Systems (ARIS) Laboratory at the University of Guelph in Canada. He has diversified research expertise. He has published about 450 referred papers, including over 200 journal papers (over 30 in IEEE Transactions). He has been very active in professional activities. He serves as the Editor-in-Chief of International Journal of Robotics and Automation, and an Associate Editor or Editorial Board member of IEEE Transactions on Cybernetics, and several other journals. Currently he is a panel member of the NSERC Discovery Grants Selection Committee on Electrical and Computer Engineering, a panel member of the NSERC-CIHR (Canadian Institutes of Health Research) Collaborative Health Research Projects (CHRP) Selection Committee, and a panel member of CIHR Grants Selection Committee. He was General Chair of the 2011 IEEE International Conference on Logistics and Automation. Among many of his awards, he was a recipient of the Distinguished Professor Award at the University of Guelph.

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Speaker Biography

Simon X Yang received the B.Sc. degree in engineering physics from Beijing University, China in 1987, the first of two M.Sc. degrees in biophysics from

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