ICCC 2026

April 16-18, 2026 * Brisbane, Australia

IEEE 13th International Joint Conference on Cybernetics and Computational Cybernetics, Cyber-Medical Systems

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PLENARY TALK

Computational Intelligence for Social Good: Advancing Cybernetics and Medical Systems

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Abstract:
Computational Intelligence (CI) plays an increasingly important role in addressing complex societal challenges, particularly in cybernetic and medical systems where adaptability and robustness are essential. This plenary lecture, Computational Intelligence for Social Good: Advancing Cybernetics and Medical Systems, introduces Evolved Machine Intelligence (EMI), a class of biologically inspired CI methods based on evolutionary principles such as variation, selection, and adaptive learning. The talk outlines recent advances in evolutionary intelligence, with emphasis on genetic programming, automated learning, and optimisation in complex, nonlinear environments. Through representative case studies, including many-objective and large-scale optimisation problems, the lecture demonstrates how EMI-based approaches can outperform classical techniques in real-world applications. The session concludes by discussing hybrid CI frameworks that integrate evolutionary methods with complementary techniques, highlighting their potential to deliver robust and socially impactful solutions for cybernetic and medical systems.

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Short CV:

Amir H. Gandomi is a Professor of Data Science at the Faculty of Engineering & Information Technology, University of Technology Sydney. He is also affiliated with Obuda University, Budapest, as a Distinguished Professor. Prior to joining UTS, Prof. Gandomi was an Assistant Professor at the Stevens Institute of Technology and a distinguished research fellow at BEACON Center, Michigan State University. Prof. Gandomi has published over five hundred journal papers and 14 books, which have collectively been cited 77,000+ times (H-index=119). He has been named one of the most influential scientific minds and received the Highly Cited Researcher award from Web of Science for six years. Prof Amir H Gandomi is ranked the 29th most impactful researcher in the AI and Image Processing subfield in 2024 (Stanford University-Elsevier) and ranked 4th best Australian Computer Scientists (research.com)! He has received multiple prestigious awards for his research excellence and impact, such as the 2024 IEEE TCSC Award for Excellence in Scalable Computing (MCR), the 2023 Achenbach Medal, and the 2022 Walter L. Huber Prize, the highest-level mid-career research award in all areas of civil engineering. Most recently, he received the 2025 Sigma Xi YI Award for AI for social good, from Sigma Xi, The Scientific Research Honor Society, one of the world's oldest and most prestigious multidisciplinary honour societies that counts 200+ Nobel Laureates, among them Albert Einstein. He has served as associate editor, editor, and guest editor in several prestigious journals, such as the AE of IEEE Networks and IEEE IoTJ. Prof Gandomi is active in delivering keynotes and invited talks. His research interests are applied AI, particularly for predictive (big) data analytics and global optimisation.