

# Computational Intelligence in Engineering and Medicine

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**Abstract.** In this keynote lecture the author presents multi-paradigm approaches for solution of intractable problems in two domains of engineering and medicine through adroit integration of nonlinear science/chaos theory, signal processing techniques such as wavelets, pattern recognition models such as neurocomputing, and nature-inspired computing such as genetic algorithms. Example applications in engineering are health monitoring and vibration control of highrise building structures. Medical applications are automated computer-aided diagnosis of neurological and psychiatric disorders such as epilepsy, the Alzheimer's disease, Autism Spectrum Disorder, and Attention Deficit Hyperactivity Disorder (ADHD).