

MONDAY

COLLOQUIUM

Neuromorphic Approaches to Sustainable AI

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31 Aug 2026 (Monday) | 16:00 Hrs (Tea / Coffee 15:45 Hrs) | Venue: TIFRH Auditorium

Today's computers are fast but architecturally wasteful: they reduce everything to 0s and 1s and shuttle those bits between separate memory and processing units, at enormous energy cost. The human brain, by contrast, performs massively parallel computation on roughly 20 watts. Its advantage lies in the synapse. A synapse is not simply on or off — its strength varies continuously, and it stores and processes information in the same place, strengthening or weakening with use. This adaptability, known as neuroplasticity, is what neuromorphic computing seeks to reproduce in hardware using artificial synaptic devices, offering a route beyond conventional CMOS and Boolean logic to low-power, adaptive systems. This talk will survey the field, outline the main challenges that remain, and present recent results from our laboratory.