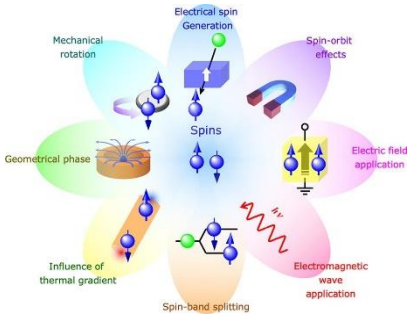
IEEE Southeastern Michigan Presents:

Distinguished Speaker Lecture on

"Unconventional Computing using Spintronics"



IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

Quadratic Unconstrained Binary Optimizing (QUBO) is a combinatorial optimization problem that has become essential to machine learning, economics, and healthcare applications. Therefore, QUBO solvers have seen a significant boost in their demand. These problems are computationally expensive, complex to parallelize, and require MIMD approaches. In this talk, we will explore a magnetic QUBO-solver, which could solve the problems more quickly and cost-effectively at room temperature. Because the Hamiltonian of a system of coupled nanomagnets is quadratic, a wide class of quadratic energy minimization can be solved much more quickly by the relaxation of a grid of nanomagnets than by a conventional Boolean processor. Our research shows that magnet-based solutions are independent of problem size as the ground state of the magnets yield the optimization solution in parallel. This co-processor consists of a programmable grid of magnetic cells that can generate any magnetic layout in a 2D plane and will be integrated with peripheral control similar to STT-MRAM memory.

Speaker Bio:

Dr Sanjukta Bhanja is a Professor of EE at the University of South Florida, Tampa and is currently serving as the Associate Dean in the College of Engineering since 2021.

At A Glance

- When:
  Date: May 21st, 2024
  Time: 06:00 – 7:15 PM (EST/EDT)
- Where:
  Online via Webex (to be shared only after you have a confirmed registration)
- Audience: OPEN to ALL*

Sponsored by IEEE SE Michigan Nanotechnology Technical Chapter

***Pre-Registration Required!**

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