**Prof. Behzad Behdani**

**Keynote Title:**

AI for Sustainability: Harnessing Artificial Intelligence to Build a Greener Future

**Abstract:**

Artificial Intelligence (AI) has emerged as a transformative enabler for advancing sustainability objectives by facilitating data-driven decision-making, optimizing resource utilization, and enabling predictive environmental modeling. This keynote systematically examines the intersection of AI technologies—specifically machine learning, deep learning, computer vision, and natural language processing—with key sustainability domains, including renewable energy integration, climate change mitigation, and circular economy systems. Based on recent empirical studies and documented implementations, the keynote identifies and discusses how AI contributes to measurable sustainability outcomes. This analysis also addresses challenges such as computational energy demands, data governance, algorithmic bias, and socio-technical inequities. The findings underscore the potential of AI not only as a technological tool but as a critical component in systemic transitions toward a greener and more equitable global future.