Indo-USA Online Short-term Course on "Algorithms, Architectures, and Circuits for IoT"

5th-30th September 2022

Organized by

Indian Institute of Technology Kharagpur, India and University of Minnesota, USA

Sponsored by

Scheme for Promotion of Academic and Research Collaboration (SPARC), Ministry of Education, Govt. of India

Objective of the Short Term Course: As multi-input-multi-output (MIMO) systems can achieve spectral-efficiency close to Shannon limit, there has been extensive work in efficient DSP and Circuit architectures for Massive MIMO Systems, which also form the backbone of the new 5G standard. This short-term course is designed to introduce various optimization techniques to realize energy efficient DSP Architectures.

This workshop is open to all students, research scholars, faculty members and active researchers. No Registration Fee. Limited Seats

Short Term Course Topics

- **Week 1➔** Representations of Signal Processing Programs, pipelining, parallel processing, etc.
- **Week 2➔** High Level Transformations like retiming, unfolding, and folding.
- **Week 3➔** Architectures for FFT, Systolic Array Design
- **Week 4➔** Algorithmic strength reduction in parallel FIR filters, pipelining and parallel processing in IIR digital filters, upcoming topics

Speaker: **Prof. Keshab K. Parhi** has been with the University of Minnesota, Minneapolis, since 1988, where he is currently Distinguished McKnight University Professor and Edgar F. Johnson Professor of Electronic Communication in the Dept. of Electrical and Computer Engg. He has published over 650 papers, is the inventor of 31 patents, and has authored the textbook VLSI Digital Signal Processing Systems: Design and Implementation. His current research addresses VLSI architecture design of ML systems, hardware security, data-driven neuroscience & molecular/DNA computing. Dr. Parhi is the recipient of numerous awards including the 2017 Mac Van Valkenburg award & the 2012 Charles A. Desoer Technical Achievement award from the IEEE CAS Society, the 2004 F. E. Terman award from the American Society of Engg. Education, the 2003 IEEE Kiyo Tomiyasu Technical Field Award, the 2001 IEEE W. R. G. Baker prize paper award, & a Golden Jubilee medal from the IEEE CAS Society in 2000. He served as the EIC of IEEE Trans. CAS-I during 2004-2005. He is a Fellow of IEEE, ACM, the American Association for Advancement of Science (AAAS) & the National Academy of Inventors.

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