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### Research Interests

- VLSI Signal Processing
- Digital VLSI Circuits and Systems
- Adaptive Signal Processing
- Machine Learning in Silicon

### Brief Summary of Research

My research interests span the broad area of VLSI architectures for statistical signal processing algorithms. My current research mainly focuses on developing efficient VLSI architectures for real-time adaptive filtering applications. For achieving the best performance-flexibility trade-off of the complex adaptive filtering algorithms, I focus on co-design of algorithm and architecture in an intertwined way rather than designing them in isolation.

### Recent Publications

- **S. Mula**, V. C. Gogineni, A. S. Dhar, “Robust Proportionate Adaptive Filter Architectures under Impulsive Noise,” IEEE Transactions on Very Large Scale Integration (VLSI) Systems, vol. 27, no.5, pp. 1223-1227, Sept. 2019.
- **S. Mula**, V. C. Gogineni, A. S. Dhar, “Algorithm and VLSI Architecture Design of Proportionate-type LMS Adaptive Filters for Sparse System Identification,” IEEE Transactions on Very Large Scale Integration (VLSI) Systems, vol. 26, no.9, pp. 1750-1762, Sept. 2018.
- V. C. Gogineni and **S. Mula**, “Logarithmic Cost based Constrained Adaptive Filtering Algorithms for Sensor Array Beamforming,” in IEEE Sensors Journal, vol. 18, no. 14, pp. 5897-5905, July 2018.
- V. C. Gogineni and **S. Mula**, “Proportionate-type Adaptive Filtering under Maximum Correntropy Criterion for Identifying Systems with Variable Sparsity,” Digital Signal Processing (ELSEVIER), vol. 79, pp. 190-198, Aug. 2018.
- **S. Mula**, V. C. Gogineni, A. S. Dhar, “Algorithm and Architecture Design of Adaptive Filters With Error Nonlinearities,” IEEE Transactions on Very Large Scale Integration (VLSI) Systems vol. 25, no. 9, pp. 2588-2601, Sept. 2017.
- S. R. K. Vadali, P. Ray, **S. Mula**, and P. K. Varshney, “Linear Detection of a Weak Signal in Additive Cauchy Noise,” IEEE Transactions on Communications, vol. 65, no. 3, pp. 1061-1076, March 2017
- B. K. N. Srinivasarao, V. C. Gogineni, **S. Mula**, and I. Chakrabarti, “A Novel Framework for Compressed Sensing based Scalable Video Coding”, Signal Processing: Image Communication (ELSEVIER) vol. 57, pp. 183-196, Sept. 2017.