Abstract:
With the increasing need for accurate mining and classification from multimedia data content, as well as the growth of such multimedia applications in mobile and distributed architectures, stream mining systems require greater amounts of flexibility, extensibility, and adaptivity for effective deployment.

I will present a novel approach to address this challenge. This approach integrates foundations of dataflow modeling for high-level signal processing system design, and adaptive stream mining based on dynamic topologies of classifiers. In particular, I will introduce a new design environment, called the lightweight dataflow for dynamic data driven adaptive systems (LiD4E) environment.

LiD4E provides formal semantics, rooted in dataflow principles, for design and implementation of a broad class of multimedia stream mining topologies. I will demonstrate the utility of these new design methods on an energy-constrained, multi-mode stream mining system for face detection.