

2014 LECTURE SERIES AT THE LABORATORY FOR TELECOMMUNICATION SCIENCES (LTS)

“Model-based Design and Implementation of Adaptive Stream Mining Systems”

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ELECTRICAL AND COMPUTER ENGINEERING AND
UMIACS

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LTS Auditorium, 8080 Greenmead Drive

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.



Biography:

Shuvra S. Bhattacharyya is a professor in the UMD Department of Electrical and Computer Engineering with a joint appointment in UMD's Institute for Advanced Computer Studies.

He has authored six books, and more than 230 papers on signal processing, embedded systems, electronic design automation and wireless communication and sensor networks.

Bhattacharyya is an IEEE Fellow. He served as a researcher at the Hitachi America Semiconductor Research Laboratory and was a compiler developer at Kuck & Associates. Bhattacharyya also held a visiting research position at the U.S. Air Force Research Laboratory.

He received his B.S. from the University of Wisconsin at Madison, and a doctorate from UC Berkeley.