UNIVERSITY OF SOUTH FLORIDA

Major Research Area Paper Presentation

Machine Learning Based Security and IoT Edge Computing on Hardware Platforms
by
Lakshmi Kavya Kalyanam

For the Ph.D. degree in Computer Science and Engineering

Recent advances in deep learning have opened up opportunities for many promising applications and intelligent hardware. In this presentation, we will review the state-of-the-art on three related topics: (1) *IoT Edge Computing for Object Detection*: Implementing IoT with machine learning algorithms has shown promising performance gains when deployed in complex environments. We will review the state-of-the-art intelligent edge-IoT systems and use of constrained platforms in distributed systems for real-time object detection; (2) *ML-based SoC Security*: Due to the complexity of System-on-Chips (SoCs), they are highly vulnerable to many types of security attacks. We will survey the application of machine learning for secure SoC design; and (3) *Machine Learning on Hardware Platforms*: We will present efficient hardware architectures in the literature for the efficient implementation of ML algorithms. After the detailed survey on the above topics, we will describe the three research problems to be undertaken in the dissertation research. We will also present some preliminary results on real-time object detection in hardware.

Thursday, April 1ˢᵗ, 2021
10:00 AM
Online (Microsoft Teams)
Please email for more information
lakshmikavya@usf.edu

THE PUBLIC IS INVITED

Examining Committee
Co-Major Professor: Srinivas Katkoori, Ph.D.
Co-Major Professor: Hao Zheng, Ph.D.
Robert Karam, Ph.D.
Nasir Ghani, Ph.D.
Himanshu Thapliyal, Ph.D.

Xinming Ou, Ph.D.
Associate Chair for Graduate Affairs
Computer Science and Engineering
College of Engineering

Sudeep Sarkar, Ph.D.
Department Chair
Computer Science and Engineering
College of Engineering

Disability Accommodations:
If you require a reasonable accommodation to participate, please contact the
Office of Diversity & Equal Opportunity at 813-974-4373 at least five (5) working days prior to the event.