PRINCETON ACM / IEEE-CS CHAPTERS
MARCH 2022 JOINT MEETING

Deep Learning Based Security Solutions for the Internet of Medical Things

With the latest advances in medical technology, more patients today have implantable embedded medical devices. And many of these devices are "connected": devices are now connected to each other and to the internet, which leads to the use of the term Internet of Medical Things. WiFi/Cellular chips allow medical devices talk to each other, in addition to the traditional roles of sensing and actuating. But there are also new risks, because this connectivity makes these devices more prone to hacking.

This talk focuses on how deep learning techniques can be utilized to make these devices secure. This talk covers different problems of security ranging between internal to communication attacks such as authentication, classification, prediction on implantable medical devices such as insulin pump implants, deep brain stimulators and cardiac defibrillator. This talk will cover efficient techniques, such as multi-layer perceptron neural networks, recurrent neural networks, etc. to overcome these problems. This talk also discusses how these algorithms can be implemented on the node or on the edge to enable real-time decision making.

Dr. Heena Rathore is an Assistant Professor at the University of Texas, San Antonio, USA. Prior to that, she was a visiting assistant professor at Texas A&M University, USA. She also worked as a Research Scientist and Program Manager at Hiller Measurements. She received her Ph.D. (with distinction) in the Computer Science and Engineering Department at Indian Institute of Technology, India. She has been the winner of a number of prestigious awards including IEEE Achievements Award, Young Engineer Award, Global Engineering Impact Award and Graphical System Design Achievement Award. She has published more than 30 papers in peer reviewed journals and conferences in her field and is the sole author of Mapping Biological Systems to Network Systems.

Date: Thursday, March 24, 2022, 8:00pm (Note date change)
Place: **ONLINE MEETING** – **registration required**
How to register:

- Send email to **PrincetonACM@gmail.com**
- OR Register on **Meetup.com** (**http://meetup.com/IEEE-Princeton-Central-Jersey-Section**)

Information: Dennis Mancl (908) 285-1066
On-line info: **http://PrincetonACM.acm.org**

All Princeton ACM / IEEE-CS meetings for fall/winter 2021-22 will be held "on-line". When you register for the meeting, you will receive an email with instructions for how to connect to the talk.

All Princeton ACM / IEEE-CS meetings are open to the public. Students and their parents are welcome. There is no admission charge.