ENSC USRA invitation –summer 2024:
New Medium Access Control Protocol for Specialized Physical Topologies

Supervisor
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For many applications of communication networks, such as the Internet-of-Things (IoT) application, low energy consumption and long battery life are important qualities to consider in designing and operating wireless networks. For many specific applications, a specially designed network protocol can be much superior to existing standards of wireless network protocols in terms of energy efficiency, performance, and reliability.

This project will analyze an innovative wireless network protocol specially designed for nodes that have physically linear configuration. We aim at implementing the wireless network protocol with software/hardware, and eventually experimenting with the system of network nodes.

Learning objectives and choice of tasks will be adjusted to the backgrounds of the student participating in this project. Example learning objectives include:

1) Simulation of network performance for different design choices
2) Gaining experience on the use of object-oriented programming language (C++) for network simulation
3) Implementing a network protocol with a programing language
4) Experimenting with network hardware nodes and analyzing performance

The student will have a weekly meeting with the supervisor (Prof. Daniel Lee) in person and report the progress of the project and learning. The supervisor will direct/advise the student's activities.