



FACULTY MENTOR

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PROJECT TITLE

Secure Deep Learning for Wireless Communications

PROJECT DESCRIPTION

The recent exponential growth of wireless traffic (e.g., Internet of Things devices) has led to slower wireless communications speeds. Deep learning and AI techniques can alleviate such inefficiency by dynamically extracting meaningful information from massive streams of wireless data. However, deep learning is susceptible to adversarial jamming attacks: low-powered hard-to-detect interference signals, which prevent accurate and secure communications between a transmitter and receiver. This project will focus on developing deep learning and signal processing algorithms to improve deep learning-based wireless communications in hostile, overcrowded, and adversarial wireless environments.

This project will be hybrid.

PREREQUISITES

- A background and interest in programming (preferably in Python, C/C++, or Java).
- Experience or interest in learning common data science Python modules such as NumPy, scikit-learn, TensorFlow, etc.
- Interest in deep learning
- Interest in applying deep learning to signal processing