

Title: “Machine learning for wireless propagation channels”

Abstract: Knowledge of wireless propagation channels is a key prerequisite for both the design and the operation of wireless systems. Adaptation of transmission parameters, planning of scheduling, and higher-layer functions such as buffer design all depend on knowing or estimating present or future channel states. While a number of sophisticated channel models, estimation methods, and prediction approaches have been introduced in the past 50 years, almost all depend on simplified models with restricted range of validity. In this talk we will discuss the state of the art in using machine learning, neural networks, and deep learning for these purposes. We will show that not only can the performance of existing applications be improved, but completely new sets of applications can be designed by leveraging hidden connections between seemingly unrelated channels.