Title: “Deep Learning in Physical Layer Communications”

Abstract: Recent research has demonstrated that machine learning (DL) has great potentials to break the bottleneck of communication systems. This presentation introduces our work in the area. DL can improve the performance of each individual (traditional) module in communication systems or optimize the whole transmitter or receiver. Therefore, we can categorize the applications of DL in physical layer communications into with and without block processing structures. For DL based communication systems with block structures, we present a couple of examples in channel estimation and signal detection. For those without block structures, we provide our recent endeavors in developing end-to-end learning communication systems. At the end of the talk, we discuss some potential research directions in the area.