

# Invitation

**October 8**

## Physical Layer Security

**Time: 3:30pm-4:30pm, Tuesday, October 8, 2019**

**Venue: G2-315, 144 Xuan Thuy, Cau Giay, Hanoi**

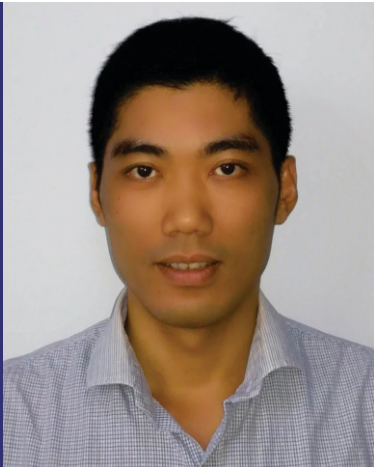
### Auto-encoder based Friendly Jamming for guaranteeing secrecy in wireless communications

Information-theoretic security or Physical layer security (PLS) has emerged as a new concept that can complement encryption-based approaches. The basic idea of PLS is to exploit the characteristics of the wireless channel to ensure the ability of the intended users to successfully perform data decoding while preventing eavesdroppers from doing so. Among of state-of-the-art proposed methods for PLS, the use of friendly jamming (FJ) or artificial noise to degrade eavesdroppers' channel is shown to be the closest practical implementation. This is because of its potential to provide perfect secrecy at a low computational requirement. However, the conventional FJ methods assumed that the channel state information (CSI) or imperfect CSI of the legitimate channel is known. This increases overhead and thus sacrifices throughput and power consumption in communication systems.

In this task, we proposed an auto-encoder (AE) based FJ approach which could reduce overhead compared to previous works. We apply the principle of AE based communications and FJ to secure communications on the wiretap channel. The key point is the embedding of the CSI estimation (between Tx and Rx) using AE into the secrecy capacity maximization problem. Most work in the literature either assume full or partial the CSI an input to generate FJ. Hence, such that security approach can reduce overhead as well as enhance communication performance.

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Bui Minh Tuan was born in 1985. He received B.Sc. and M.Sc. at The Le Quy Don Technical University, Hanoi, Vietnam in 2008 and 2013 respectively. He then was posed to The Military Institute of Science and Technology. His position is a researcher with the responsibility is conducting research on and developing equipment and weapons for the Army to meet the requirements of modern warfare, while simultaneously researching on sciences, and technologies for civilian use. His major is electronics and communications. Tuan has been a Ph.D. student at VNU- UET since June 2019. His research interests include IoT, Physical Layer Security, and Computer Vision.