

# IEEE ICUS 2021

## Invited Session Summary

<b>Title of Session</b> Intelligent Navigation and Advanced Information Fusion Technology
<b>Name, Salutation, Affiliation and Email of Organizers</b> <b>1. Prof. Yuxin Zhao</b> Harbin Engineering University, China zhaoyuxin@hrbeu.edu.cn <b>2. Dr. Yulong Huang</b> Harbin Engineering University, China heuedu@163.com
<b>Details of Session(including aim and scope)</b> Navigation technology provides accurate position, velocity and attitude information for the unmanned system, which is the key to determine whether it can reach the predetermined location accurately, complete the task smoothly and return safely. It has always been a research hotspot in the field of unmanned systems. In recent years, with the continuous development of the principle and manufacturing technology of navigation sensors, a large number of low-cost, small size, low power consumption, and intelligent navigation sensors have been developed, which provides the possibility for obtaining different types of navigation data. We encounter the challenge how to obtain reliable and high-accuracy estimates of navigation parameters from multi-navigation sensor data in the complex operation environment of unmanned systems. This special session will discuss the latest progress and important breakthrough of intelligent navigation and advanced information fusion technology, and promote the communication and development of unmanned system navigation. It mainly includes (but are not limited to )the following research topics: <ol style="list-style-type: none"><li>1. Inertial navigation, satellite navigation, acoustic navigation, integrated navigation and other traditional navigation technologies;</li><li>2. All source navigation, cooperative navigation, visual inertial navigation, SLAM and other intelligent navigation technologies;</li><li>3. Multi-sensor information fusion, distributed estimation, state estimation and other advanced information fusion technologies;</li><li>4. Machine learning technologies in navigation fields, such as variational learning, Gaussian process learning, and deep learning.</li></ol>