A Discussion with the Theoretical Framework and Frontier Issues of Intelligent Navigation System

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Abstract

Navigation problem has been one of the key technologies in the development of transportation tools. In recent years, with the breakthroughs in sensor technology and the rapid development of Artificial intelligence (AI) technology, the concept of intelligent navigation system has begun to germinate. This talk mainly discusses the background of the concept of intelligent navigation system, and gives its theoretical framework and main frontiers issues, such as intelligence of situation perception, intelligence of information fusion, and intelligence of mission decision-making. And combined with the practical engineering background of navigation, the design idea and technical approach of intelligent navigation system are expounded, which will provide a new idea for the design of the future new marine vehicle navigation system.

About the speaker...

Yuxin Zhao received the Ph.D. degree in navigation, guidance and control from Harbin Engineering University (HEU) in 2005, and completed post-doctorial research in Control Science and engineering from Harbin Institute of Technology (HIT) in 2008. From Mar 2012 to Mar 2013, he visited the Centre for Transport Studies (CTS) at Imperial College London as a research fellow. He is a currently a professor at College of Automation, Harbin Engineering University (HEU), he is also the executive director of National-Province Joint Research Center for Advanced Navigation and Intelligent Marine Technology. His research interests include marine navigation system, intelligent ocean sensing and awareness system.

He has published more than 50 Journal papers and obtained 25 national patents, and been honored 5 provincial and ministerial awards for S&T. Dr. Zhao has served the academic communities in various capacities including the member of Royal Institute of Navigation, the Senior Member of IEEE, the fellow of China Navigation Institute, and the Fellow of IET. Dr. Zhao was a recipient of the Young Scholar of "Changjiang Scholars Program" in 2017 and the Top-Notch Young Talents of China in 2018.