2023 第六届 IEEE 国际无人系统大会
特邀专题简介表

特邀专题名称

智能感知和多源信息融合

组织者的姓名、职称、单位和邮箱

1. 申兴发，教授，杭州电子科技大学

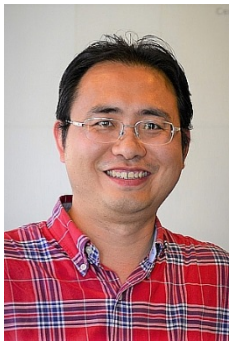
2. 李建军，教授，杭州师范大学

3. 周文晖，教授，杭州电子科技大学

个人简介

申兴发，杭州电子科技大学计算机学院教授。2000、2007 年分获浙江大学学士、博士学位，美国明尼苏达大学双城分校访问学者，研究方向包括物联网、智能感知、组合定位导航等。先后承担包括 1 项重大项目课题在内的 6 项国家自然科学基金项目（其中主持 3 项）、1 项国家重点研发计划项目课题、1 项国家社会科学基金重大项目子课题、1 项 973 前期研究专项项目以及、浙江省重点科技研发计划（其中 1 项主持）、4 项浙江省自然科学基金项目（其中 2 项主持）。发表学术论文 60 余篇，其中 SCI 收录近 30 篇。中国自动化学会混合智能专委会、认知计算与系统专委会、青年工作委员会的委员；浙江省计算机学会嵌入式与物联网技术专委会委员、浙江省物联网产业协会首批个人会员。浙江省高校中青年学科带头人，浙江省高校优秀青年教师，杭州市国家高新区 5050 创新创业人才。担任国家重点研发计划“物联网与智慧城市”重点专项会评专家，及国家自然基金委通讯评议专家。获浙江省科技进步三等奖 1 项、中国指挥控制学会科技奖二等奖 1 项、中国自动化学会科技进步奖二等奖 1 项。

李建军，博士，杭州师范大学教授，博士生导师，人工智能与微电子技术专家，在包括人工智能、多源信息融合和信号处理与设计等方面成绩显著，特别是在国际视频标准、图形图像处理、生物特征识别与医学图像处理、计算机视觉智能分析检测与识别以及微电子以及传感器设计领域从事研究工作 30 余年。著有英文、中文专著各一部、在国内国际期刊上发表论文 70 余篇，发明专利 20 余项。先后工作于国内大型研究所(CETC)、加拿大国家听觉实验室(NCA)、美国三菱研究院(MERL)、瑞士洛桑理工(EPFL)、土耳其比尔肯特大学(Bilkent University)和安卡拉大学(Ankara University)、杭州电子科技大学等，归国前任安卡拉大学长聘助理教授。



周文晖，男，杭州电子科技大学计算机学院教授。2005 年获浙江大学博士学位。2005 年 6 月至 2007 年 10 月期间在浙江大学从事博士后研究工作。2007 年 10 月至今，工作于杭州电子科技大学计算机学院。2015 年 4 月至 2016 年 4 月，前往美国印第安纳大学布鲁明顿校区的计算机学院访学一年。自博士以来，长期从事图象处理、计算机视觉、计算摄影学、三维建模相关方面的理论和应用研究。已主持国家自然科学基金、863 子课题、浙江省自然科学基金重点项目、浙江省重大专项优先主题等国家和省部级项目多项。已发表 SCI/EI 论文 40 余篇，获授权发明专利 10 余项。

特邀专题简介

高精度、高效、安全的自主无人系统对于陆地、海洋等未知环境的科学探索与资源发现等国家战略需求极其重要。未知环境的复杂多变性、感知特征的非结构性、环境要素的不确定性，使得环境感知、认知理解和多源信息融合能力成为支持无人系统自主安全运行与精准探测的基础性问题。针对复杂未知环境下自主系统所面临的环境动态、感知受限、信息不完全等问题，本专题关注深度学习、多源信息融合、视觉感知、光场成像等技术，探讨未知复杂环境下自主系统多源感知与智能处理的理论及技术的新进展。

本特邀专题邀请以下与“智能感知和多源信息融合”主题相关的包含创新思想、概念、新发现、改进以及新应用的原创论文。

- 智能感知与处理
- 多源信息融合
- 视觉信号处理
- 面向感知的 AI 算法
- 光场信号采集

IEEE ICUS 2023
Invited Session Summary

Title of Session

Intelligent Perception and Multi-source Information Fusion

Organizers

1. Prof. Xingfa Shen

Hangzhou Dianzi University, China

shenxf@hdu.edu.cn

2. Prof. Jianjun Li

Hangzhou Normal University, China

jianjun.li@hdu.edu.cn

3. Prof. Wenhui Zhou

Hangzhou Dianzi University, China

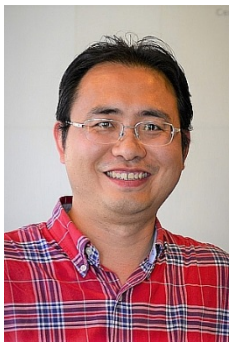
zhouwenhui@hdu.edu.cn

Biosketches of Organizers

Xingfa Shen, Professor, School of computer science, Hangzhou Dianzi University. He received his B.S. degree and Ph.D degree from Zhejiang University in 2000 and 2007. He is a visiting scholar at the twin cities of the University of Minnesota from 2011 to 2012. His research interests include the Internet of things, intelligent sensing, integrated navigation etc. He has successively undertaken 6 projects of National Natural Science Foundation of China including 1 major project (as PI in 3 of them), 1 national key R & D plan project and 1 sub-project of National Social Science Foundation major project, 1 1 973 preliminary research special project and 4 projects of Zhejiang Provincial Natural Science Foundation. More than 60 academic papers have been published, including nearly 30 of them indexed in SCI. Member of hybrid intelligence special committee, cognitive computing and systems special committee and youth working committee of Chinese Association of Automation; Member of embedded and Internet of things special committee of Zhejiang computer society and individual member of Zhejiang Internet of things industry association. Young and middle-aged discipline leaders in colleges and universities in Zhejiang Province, 5050 innovative and entrepreneurial talents in Hangzhou National High-tech Zone. He has been invited to serve as evaluation expert of the national key R & D plan

"Internet of things and smart city", and communication evaluation expert of the National Natural Science Foundation of China for many times.

Jianjun Li, Ph.D., Professor and doctoral supervisor of Hangzhou Normal University, China, expert in artificial intelligence and microelectronics, has made remarkable achievements in artificial intelligence, multi-source information fusion, signal processing and design, especially in international video standards, graphics and image processing, biometric recognition and medical image processing. He has been engaged in research work in the fields of computer vision intelligent analysis, detection and recognition, microelectronics and sensor design for more than 30 years. He has written one monograph in English and one monograph in Chinese, published more than 70 papers in domestic and international journals and more than 20 invention patents. He has successively worked in five countries and six organizations, including China's Research Institute (CETC), Canada's national auditory Laboratory (NCA), Mitsubishi Research Institute (MERL), Switzerland's Lausanne Institute of Technology (EPFL), Turkey's Bilkent University and Ankara University, and Hangzhou Dianzi University, China. He was a long-term assistant professor of the University of Ankara.



Wenhui Zhou, Professor, School of computer science, Hangzhou Dianzi University, China. He received a Ph.D degree from Zhejiang University in 2005. From June 2005 to October 2007, he engaged in post doctoral research in Zhejiang University. From October 2007 to now, he has worked in the computer school of Hangzhou Dianzi University. From April 2015 to April 2016, he visited the school of computer science at Indiana University Bloomington campus for one year. He has been engaged in theoretical and applied research on image processing, computer vision, computational photography and three-dimensional modeling for a long time. He has presided over a number of national, provincial and ministerial projects such as National Natural Science Foundation of China, 863 sub projects, key projects of Zhejiang Provincial Natural Science Foundation and major special priority themes of Zhejiang Province. More than 40 SCI / EI papers have been published and more than 10 invention patents have

been authorized.

Details of Session

High precision, efficient and safe autonomous unmanned system is extremely important for national strategic needs such as scientific exploration and resource discovery in unknown environments such as land and sea. The complexity and variability of the unknown environment, the non structural perception characteristics and the uncertainty of environmental elements make the ability of environmental perception, cognitive understanding and multi-source information fusion become the basic problems to support the autonomous and safe operation and accurate detection of unmanned systems. Aiming at the problems of environmental dynamics, limited perception and incomplete information faced by autonomous systems in complex and unknown environments, this topic focuses on technologies such as deep learning, multi-source information fusion, visual perception and light field imaging, and discusses the new progress of theory and technology of multi-source perception and intelligent processing of autonomous systems in unknown and complex environments.

The invited session invites original papers of innovative ideas and concepts, new discoveries and improvements, and novel applications relevant to the following selected topics of “Intelligent Perception and Multi-source Information Fusion”.

- Intelligent perception and processing
- Multi source information fusion
- Visual signal processing
- Perception oriented AI algorithm
- Light field signal acquisition