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| **Robotics and Intelligent Machines** |
| Contact person: ZOU Jun | Email: junzou@zju.edu.cn |
| **Research background:**Zhejiang University was one of the prior universities in the research on robotics and intelligent machines. In early 1980s, it carried out the research on the industrial robots. The earliest domestic “six degree of freedom series hydraulic mechanical arm” was manufactured in that period. In the field of robot and intelligent equipment, Zhejiang University has already been equipped with good research and technology foundation. In order to facilitate further integration of the preponderant research power intramural, and also to promote our research level through the multidisciplinary cooperation, the "Research Alliance of Robotics and Intelligent Machines" has been established. The Alliance is led by Professor YANG Huayong, member of Chinese Academy Engineering. Recently, it has integrated five faculties,namely science, engineering, information, agriculture and medicine, and 11 colleges within the faculties, namely mechanical engineering, control science, electrical engineering, ocean, computer science and technology, bio-systems engineering and food science, biomedical engineering & instrument science, information science & electronic engineering, agriculture & biotechnology, aeronautics & astronautics, and medicine; more than 30 research groups are also included. The Alliance concentrates on the international frontier of the robot and intelligent machine. Meanwhile, aiming at realizing 3-5 advantageousresearch directions during the “Thirteenth Five-Year Plan”and achieving the advanced level internationally, the Alliance carries out both basic research and key technological research. In addition, it will also manufacture a batch of robotics and intelligent machines or products with international influence, aiming to make Zhejiang University an essential research and development hub. |
| **Main research topics and progress:**1. Research on Aviation intelligent machine technology
	1. Research on aircraft hydraulic intelligent machine technology
	2. Research on aircraft assembly intelligent machine technology.
2. Research on Ships and warships intelligentmachine technology.
3. Research on weapons intelligent machine technology
4. Research on engineering machinery intelligent machine technology
5. Research on Multi-robot coordinationintelligent manufacturing system
6. Research on intelligent robot technology
7. Research on machine replacement technology
8. Research on service robot (tourism robot) technology
9. Research on wearable robot technology
10. Research on underwater power cable inspection robot
11. Research on High end medical image guided robot based on cone beam CT
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| **Member and college:**1. **School of Mechanical Engineering:**

YANG Huayong; ZOU Jun; GONG Guofang;FENG Peien; FU Jianzhong; KE Yinglin; LU Guodong; YANG Canjun; LIU Tao;LI Xin; LEI Yong; OU YANG Xiaoping; QIU Qingying; SHEN Hongyao; WANG Jin; ZHANG Bin; ZHU Weidong; ZHU Xiaocong;ZHU Yi.1. **QIUSHI Academy for Advanced Studies:**

ZHENG Xiaoxiang; XU Kedi1. **College of Control Science and Engineering:**

XIONG Rong; ZHU Qiuguo; PAN Huiru1. **College of Electrical Engineering:**

WEI Wei; XIANG Ji; NIAN Heng1. **College of Biosystems Engineering and Food Science:**

YING Yibin; JIANG Huanyu; HE Yong1. **College of Biomedical Engineering&Instrument Science**

 CHEN Yaowu; SONG Kaichen; YE Xuesong; TIAN Xiang1. **College of Computer Science & Technology:**

YING Fangtian; YANG Guoqing; ZHANG Xusheng1. **School of Aeronautics and Astronautics:**

CHEN Weiqiu; LI Tiefeng; QU Shaoxing1. **College of Information Science & Electronic Engineering:** XIANG Zhiyu
2. **College of Agriculture & Biotechnology:**SONG Chongde
3. **Institute of Translational Medicine:**NIU Tianye
4. **Robot Research Centre:**ZHANG Xuequn
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| **Representative achievements:*** Tunnel Boring Machine
* Intelligent drilling and riveting assembly system for large aircraft wall board
* Rat robot for brain-computer interface
* Precision injection molding machine
* Three carving robot
* Intelligent drawing machine arm
* Table tennis robot
* Four-leg robot
* Robocup mini soccer robot
* Wall-climbing robot
* Tissue-engineered soft-robotic ray
* Exoskeleton Robot
* Unmanned plant protection helicopter
* Long-distance intelligent monitoring of refrigerated vehicle
* Delta 3D-Printer
* 3D Bio-Printer
* Metal mesh belt robot welding and polishing intelligent production line
* High end medical image guided robot based on cone beam CT
* Rehabilitative aid instrument (for upper/lower limbs)
* Intelligent hospital beds –for bedridden patients
* Water jet cleaning robot
* Vulnerable fruit detection and classification line
* Phased array three-dimensional imaging sonar system
* Ultra-low delay intelligent network camera
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