UCAS-Hand: An Underactuated Powered Hand Exoskeleton for Assisting Grasping Task

Houcheng Li[1,2], Long Cheng[1,2], Zhengwei Li[1], and Guotao Li[1]
1. State Key laboratory of Management and Control for Complex Systems, Institute of Automation, Chinese Academy of Sciences, China
2. School of Artificial Intelligence, University of Chinese Academy of Sciences

- The UCAS-Hand is the first linkage-based exoskeleton to achieve the human-robot kinematic compatibility of the thumb joint.
- The UCAS-Hand can realize the self-adaptive grasp to different objects, apply only normal forces, and is passively backdrivable.
- The UCAS-Hand can achieve the thumb underactuated movement by constructing a spherical seven-bar linkage.