Zeyu Ren

Ph.D. in Robotics

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Work Experience

2021-now **Xiaomi Inc.**.
Senior Hardware Engineer, Xiaomi Robotics Lab, Beijing, China.

2020-2021 **Rokae Robotics**.
Mechatronics Engineer, Robotic R&D Center, Beijing, China.

2019–2020 **Italian Institute of Technology (IIT)**.
Post Doc, Humanoid and Human Centered Mechatronics , Genoa, Italy.

Education

2015–2019 **Italian Institute of Technology (IIT) & University of Genoa (UniGe)**.
Ph.D. in Robotics, Advanced Robotics (ADVR), Genoa, Italy.

2011–2015 **Zhejiang University**.
B.E in Mechatronics, Chu Kochen Honors College (CKC), Hangzhou, China.

Research Interests

Under-Actuated Hands, Series Elastic Actuator, Cobot Actuators
Tendon Driven Mechanism, Articulated Robots, Mechatronics Design

Skills and Expertise

R & D Tools Design: PTC Creo, SolidWorks, AutoCAD
Simulation and Modeling: ANSYS, Adams, MATLAB Simulink, Gazebo & ROS

Engineering Assembly & Maintain Documentation, CNC Manufacturing Process, Precise Manual Assembly

Academic Latex + JabRef, Word + Zotero, Academical Presentation

Multimedia Filmora, Kdenlive, Inkscape, SketchUp

Language English (fluent), Chinese (mother tongue)

Projects

2020-2021 **xMate CR**, *ROKAE*, Beijing.
Design and develop high performance xMate CR7 cobot and its series actuators GIA.

2017-2020 **CENTAURO**, *IIT*, Genova, European Project H2020-ICT-23-2014.
Design and develop tendon driven based under-actuated hands (HERI Hand) for CENTAURO robot.

2015-2017 **WALK-MAN**, *IIT*, Genova, European Project FP7-ICT-2013-10.
Design and develop a novel 3-DoF robotic leg (eLeg) for explosive and energy efficient motion.

2013-2015 **ZJUNlict**, *Zhejiang University*, Hangzhou, RoboCup SSL.
Design and develop omni-wheeled soccer robots for RoboCup SmallSize League.

Awards

2020.10 **Z-Park U30**, **Winner**.
30 under 30 in Zhong Guan Cun Science Park (Z-Park), Beijing, China

2014.07 **RoboCup**, **Championship**.
Member of ZJUNlict, Championship of 2014 RoboCup SmallSize League, Joao Pessoa, Brazil

Publications

2021 E. Barrett, **Z. Ren**, N. G. Tsagarakis, "*Grasping with Embedded Synergies through a Reconfigurable Electric Actuation Topology*", in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

2020 V. D. Amara, J. Malzahn, **Z. Ren**, W. Roozin, N. G. Tsagarakis, "*On the Efficient Control of Series-Parallel Compliant Articulated Robots*", in IEEE International Conference on Robotics and Automation (ICRA).

2019 W. Roozing, **Z. Ren**, N. G. Tsagarakis, "*An Efficient Leg with Series-Parallel and Biarticular Compliant Actuation: Design Optimisation, Modelling, and Control of the eLeg*", in International Journal of Robotics Research (IJRR).

2019 T. Klamt, D. Rodriguez, L. Baccelliere, Et al., **Z. Ren**, Et al., U. Suess, N. Tsagarakis and S. Behnke, "*Flexible Disaster Response of Tomorrow - Final Presentation and Evaluation of the CENTAURO System*", in IEEE Robotics and Automation Magazine (RAM).

2019 N. Kashiri, L. Baccelliere, L. Muratore, A. Laurenzi, **Z. Ren**, E. Hoffman, G. Rigano, Et al., N. G. Tsagarakis, "*CENTAURO: A Hybrid Locomotion and High Power Resilient Manipulation Platform*", in IEEE Robotics and Automation Letters (RAL)

2018 **Z. Ren**, W. Roozing and N. G. Tsagarakis, "*The eLeg: A Novel Efficient Leg Prototype Powered by Adjustable Parallel Compliant Actuation Principles*", in IEEE-RAS International Conference on Humanoid Robots (Humanoids).

2018 W. Roozing, **Z. Ren** and N. G. Tsagarakis, "*Design of a novel 3-dof leg with series and parallel compliant actuation for energy efficient articulated robots*", in IEEE International Conference on Robotics and Automation (ICRA).

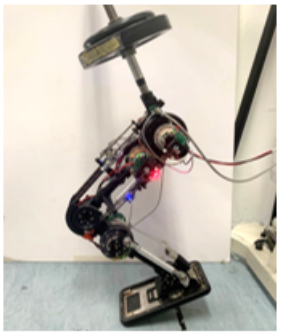
2018 **Z. Ren**, N. Kashiri, C. Zhou and N. G. Tsagarakis, "*HERI II: A Robust and Flexible Robotic Hand based on Modular Finger design and Under Actuation Principles*", in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

2017 **Z. Ren**, C. Zhou, S. Xin and N. G. Tsagarakis, "*HERI Hand: A Quasi Dexterous and Powerful Hand with Asymmetrical Finger Dimensions and Under Actuation*", in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

2014 C. Li, R. Xiong, **Z. Ren**, T. Jian and Y. Zhao "*Zjunlict: Robocup 2014 small size league champion*", in Robot Soccer World Cup, Spring Cham, 47-59.

Robots that I Built

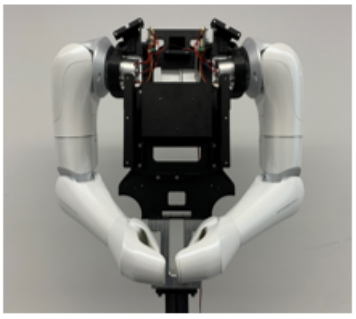
HERI-II Hand



eLeg

ROKAE-CR7

ROKAE-GIA



Xiaomi-CyberOne