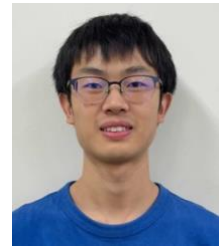


## Yang Chen

JSPS Research Fellow (DC2)

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### Education

- **Jilin University** Sep. 2013-Jun. 2017  
Bachelor of Engineering in Mechanical Engineering (Excellent Engineers Training Plan, Ministry of Education)  
Supervised by Prof. [DongF. Wang](#)  
Bachelor thesis: *Explore the Way of Designing the Piezoelectric Dividing Structure to Both Realize the Stress Distributing Evenly and Achieve Largest Output Voltage*
- **University of Tsukuba** Apr. 2018-Mar. 2023  
Research student Oct. 2017-Apr. 2018  
Master of Human Informatics Apr. 2018-Mar. 2020  
Ph. D Program in Empowerment Informatics (Special Fellow Scholarship) Apr. 2018-Mar. 2023  
Supervised by Prof. [Kenji Suzuki](#)  
Master thesis: *Torso Control System and Autonomous Docking Support for a Standing Mobility Device*

### Internship

- **École polytechnique fédérale de Lausanne (EPFL)** Aug. 2019-Oct. 2020  
Research topic: Autonomous docking system for a standing mobility device  
Supervised by Prof. [Aude Billard](#)
- **CNRS-AIST JRL** Aug. 2021-Nov. 2021  
Research topic: Complementary SLAM for Immersive Teleoperation with A Humanoid  
Supervised by Prof. [Fumio Kanehiro](#)

### Current Main Projects

- **Control interface for hands-free navigation of personal mobility vehicles** Oct. 2017-Present  
This work aims to explore an intuitive and simple control interface for personal mobility devices that would allow hands-free locomotion.
- **Virtual landmark-based control of docking support for assistive mobility devices** Oct. 2018-Present  
This works proposes an autonomous docking support approach for assistive mobility devices like intelligent wheelchairs to assists the user in approaching a rest surface, such as a chair or bed. A stable nonlinear feedback control is constrained to field of view (FOV) by transforming the target volume to a virtual landmark pose. The effectiveness is demonstrated with a real-time implementation on a standing mobility vehicle - Qolo, using embedded RGBD sensing.
- **Tsukuba smart city project** Aug. 2020-Present  
In this project, my current work is to compare the risk perception of pedestrian when different personal mobility devices such as standing mobility device, normal wheelchair, scooter, electrical car cart buggy are used on the road.

### Other Scientific Research Experience

- **National Training Programs of Innovation for Undergraduates** May 2015-Sep. 2016  
We developed a movable child restraint system based on four-bar linkage and analyzed child injury in car collision based on MADYMO, the injury reduced about 17%.
- **MEMS Laboratory of Jilin University** Apr. 2016-Jun. 2017  
I explored the way of designing the piezoelectric dividing structure to both realize the stress distributing evenly and achieve largest output voltage.
- **EMP Project Based Research** Apr. 2018-Dec. 2018  
With using the world's largest virtual reality system: Large Space, we developed a VR Alice's experience system, our research question is: "Does human body size affect recognition of environment?".
- **Challenge Grant 2019** Apr. 2019-Feb. 2020  
We developed a tennis wheelchair for wheelchair user.
- **[Abema TV project](#)** Apr. 2019-Feb. 2020  
We developed a wearable personal mobility device: Wemo, which has a wheeled locomotion function on flat surface and can be folded during user's stair-climbing.
- **Challenge Grant 2020** Oct. 2020-Present  
We aim to develop a VR wheelchair tennis system with real-time force feedback.

### Publication

- D. Paez-Granados, M. Hassan, Y. Chen, H. Kadone, & K. Suzuki, "Passive Synchronous Exoskeleton: Optimizing Human-Robot Energy Transfer for Assisted Postural Transition", IEEE/ASME Transactions on Mechatronics, 2021. (**Under review, peer-reviewed, IF = 5.673**)
- Y. Chen, D. F. Paez Granados, B. Leme and K. Suzuki, "Virtual Landmark Based Control of Docking Support for Assistive Mobility Devices," in IEEE/ASME Transactions on Mechatronics, doi: 10.1109/TMECH.2021.3081426. (**Peer-reviewed, IF = 5.673**)
- Y. Chen, D. Paez-Granados, H. Kadone and K. Suzuki, "Control Interface for Hands-free Navigation of Standing Mobility Vehicles based on Upper-Body Natural Movements," 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020, pp. 11322-11329, doi: 10.1109/IROS45743.2020.9340875. (**Peer-reviewed**)
- Y. Chen, D. Paez-Granados and K. Suzuki, "Torso Control System with A Sensory Safety Bar for a Standing Mobility Device," 2019 International Symposium on Micro-NanoMechatronics and Human Science (MHS), 2019, pp. 1-5, doi: 10.1109/MHS48134.2019.9249303. (**Peer-reviewed**)
- Y. Liu, Y. Chen et al., "Developing MEMS electric current sensors for end use monitoring of power supply: Part VIII - segmentation design and empirical analysis of piezoelectric layers based on cantilever beam structure," 2018 Symposium on Design, Test, Integration & Packaging of MEMS and MOEMS (DTIP), 2018, pp. 1-4, doi: 10.1109/DTIP.2018.8394240. (**Peer-reviewed**)
- Y. Chen, D. Paez-Granados, and K. Suzuki, "Holistic body machine interface solution for standing mobility vehicle for the lower-body impaired—integrating autonomous docking system—," in The Proceedings of JSME annual Conference on Robotics and Mechatronics (Robomec) 2020. The Japan Society of Mechanical Engineers, 2020, pp. 2P1–D10. (**Non-peer-reviewed**).

#### Presentation at international conference

- Chen, Y., Paez-Granados, D., Leme, B., and Suzuki, K., "Virtual Landmark Based Control of Docking Support for Assistive Mobility Devices", IEEE/ASME International Conference on Advanced Intelligent Mechatronics, 2021. (**Oral, peer-reviewed**)
- Y. Chen, D. Paez-Granados, H. Kadone, and K. Suzuki, "Control interface for hands-free navigation of standing mobility vehicles based on upper-body natural movements," in 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE, 2020. (**Oral, peer-reviewed**)
- Y. Chen, D. Paez-Granados, and K. Suzuki, "Torso Control System with A Sensory Safety Bar for a Standing Mobility Device," in International Symposium on Micro-Nano Mechatronics and Human Science (MHS-2019), MEXT, Ed. Nagoya, Japan: IEEE, 2019. (**Oral, peer-reviewed**)

#### Presentation at domestic conference

- Y. Chen, D. Paez-Granados, and K. Suzuki, "Holistic body machine interface solution for standing mobility vehicle for the lower-body impaired—integrating autonomous docking system—," in The Proceedings of JSME annual Conference on Robotics and Mechatronics (Robomec). (**Poster, non-peer-reviewed**)
- Chen Yang, Diego Paez-Granados, Kenji Suzuki, "Upper-Body Sensing Based Control System with Docking Support on A Standing Mobility Device", 生体医工学シンポジウム, 予稿・抄録集, 2019, 1A-23. (**Poster, non-peer-reviewed**)

#### Honors & Awards

- Jilin University third-class scholarship *Sep. 2015 & Sep. 2016*
  - Mathematical Modeling Contest Third Prize *Dec. 2015*
  - 1<sup>st</sup> prize in First Robot Competition of Jilin University *Mar. 2017-May 2017*
  - Finalist (5/80, \$500,000 grant received) in [Toyota Mobility Unlimited Challenge](#) *Apr. 2018-Dec. 2020*
- The \$4 million Mobility Unlimited Challenge supports radical improvements in the mobility and independence of people with lower-limb paralysis through smarter assistive technology. We (Team Qolo) developed a mobile exoskeleton on wheels, allowing users to sit or stand with ease.

#### Activities

- Interdisciplinary Workshop for Leading Students 2018 (IW4LS): 1st prize in final presentation *Apr. 2018*
- Summer workshop Vitality& City in Netherlands *Aug. 2018*
- Summer workshop in Waseda University: 1st prize in final presentation *Oct. 2018*
- Visit Shiseido Museum, NEC laboratory, Hitachi laboratory, Fujitsu laboratory

#### Languages

- Chinese (native), English (full professional proficiency), Japanese (limited working proficiency)

**Computer skills**

- CATIA, AutoCAD, Fusion 360, EAGLE, MATLAB, Arduino programming, Python, C++, Linux, ROS, Unity