

# Fan, Ke

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## Education

<b>Ph.D. Jan. 2021-pres.</b>	Politecnico di Milano, Italy	Biomedical Engineering
<b>M.S. Sept. 2017-Jun.2020.</b>	Shandong University, China	Mechanical manufacturing and Automation
<b>B.S. Sept.2013-Jun.2017.</b>	Wuhan University of Science and Technology, China	Mechatronics Engineering

## Research Areas and Skills

**PhD.** Surgical robot systems, Reinforcement Learning.

**M.S.** Design of hydraulic system, Adaptive Robust Control, Kalman Filter. Mathematic modeling.

ROS, MATLAB & Simulink, Unity3D, C, C++, C#, Python, AMESim, CAD (Auto CAD, SolidWorks).

## Language Qualifications

IELTS Academic Score: 7.

Japanese-Language Proficiency Test Level: N2.

## Research Experience

**Jan. 2021-pres.** Safe Reinforcement Learning for Safe Autonomous Surgical Tasks.

**Aug. 2018-2020** Control Strategy for Active/passive Integrated Heave Compensator Applied to Deep-sea Heavy Towing Marine Equipment with Time Delay

**Dec. 2018-Apr. 2019** Key Technologies of Energy Efficient Extraction and Conversion of Floating Wave Power System

**Sept. 2017-July 2018** Control Characteristics of Underwater 7 Function Hydraulic Manipulator

## Selected Publications

- Yan, Fei, **Ke Fan**, Xuechen Yan, and Shizhen Li. "Constant Tension Control of Hybrid Active-Passive Heave Compensator Based on Adaptive Integral Sliding Mode Method." IEEE Access 8 (2020): 103782-103791.
- **Ke Fan**, Shizhen Li, Ke Xu. "Prediction of Irregular Waves with Variational Bayesian Based Strong Tracking Kalman Filter for Motion Control in Hybrid Active-Passive Heave Compensator Compensator." IEEE Transactions on Industrial Informatics. (Under review)
- **Ke Fan**, Shizhen Li, Yanjun Liu, "Extended Disturbance Observer based Adaptive Robust Control for Active Heave Compensator." Chinese Hydraulics & Pneumatics 2020, (7). (Chinese Journal)
- Yu, Hui, **Ke Fan** et al. "Study on Energy Recovery Performance of Linear Active Heave Compensation System." Journal of Physics: Conference Series. Vol. 1549. No. 4. IOP Publishing, 2020.
- Zhang, Xin, **Ke Fan** et al. "Neural approximation enhanced predictive tracking control of a novel designed four-wheeled rollator." Applied Sciences 10.1 (2020): 125.
- Qi, W., Su, H., **Fan, K.**, Chen, Z., Li, J., Zhou, X., ... & De Momi, E. (2021). Multimodal data fusion framework enhanced robot-assisted minimally invasive surgery. Transactions of the Institute of Measurement and Control, 0142331220984350.

## Selected Patents

- Yanjun Liu, **Ke Fan** et. Automatic Household Trash Can: ZL 2018 2 0752429. X

## Internships

June 2016-Aug. 2016 **DongFeng Motor Corporation**

- Studied manufacturing process of crankshafts in crankshafts manufacturing workshop of engine factory.

June 2015-Aug. 2015 **Wuhan Iron and Steel (Group) Company**

- Studied the processes of ironmaking, steelmaking and steel rolling.