RUNNAN ZOU

Tel.: +1 613 261 6995 Email:rzou043@uottawa.ca

EDUCATION

University of Ottawa Ottawa, Canada
Master of Applied Science in Mechanical Engineering September 2020 – Now
Major: Mechanical Engineering
GPA: 9.6/10

Beijing Institute of Technology Beijing, China
Master of Science in Mechanical Engineering September 2017 – June 2020
Major: Mechanical Engineering
GPA: 80.59/100 (ranking: top 15%)

Beijing Institute of Technology Beijing, China
Bachelor of Science in Mechanical Engineering September 2013 – June 2017
Xu Teli Elite Class
GPA: 80.99/100 (ranking: top 15%)

ACADEMIC RESEARCH EXPERIENCE

Faculty of Mechanical Engineering, University of Ottawa Core researcher
Project: Research on Machine Learning Adaptive Optics for Satcom
Advisor: Davide Spinello, Ross Cheriton, Colin Bellinger August 2021 – Now

- Developed a ground-based telescope model with high contrast imaging simulation.
- Proposed an online reinforcement learning method based on soft-actor-critic for telescope system control.

Faculty of Mechanical Engineering, University of Ottawa Core researcher
Project: Research on Coverage Control of Multi-Agent System
Advisor: Davide Spinello March 2021 – August 2021

- Developed distributed control algorithm for exploration of unknown environment based on multi-agent reinforcement learning and Gaussian process regression.

National Engineering Laboratory for Electric Vehicles, Beijing Institute of Technology Core researcher
Project: Research on Energy Management Strategy of Hybrid Power Source
Advisor: Chenxing Hu June 2019 – August 2019

- Proposed an accelerated energy management strategy NAF-DQL+PR based on deep Q learning and realized it by TensorFlow
- Verified the proposed strategy by software simulation and hardware-in- the-loop simulation

National Engineering Laboratory for Electric Vehicles, Beijing Institute of Technology Core researcher
Project: Research on Optimization of hyper parameter in Deep Q Learning
Advisor: Yuan Zou March 2020 – April 2020

- Optimized the hyper parameter of NAF-DQL+PR by genetic algorithm and realized it by Genetic Algorithm
- Verified the proposed strategy by software simulation

National Engineering Laboratory for Electric Vehicles, Beijing Institute of Technology Core researcher
Project: Monitoring and Regulation Interface Development of Hybrid Power Source
Advisor: Yuan Zou September 2019 – October 2019

- Established vehicle CAN protocol and improved system architecture
- Achieved real-time monitoring and adjustment interface of the power source based on LabVIEW
- Achieved pressure test of the interface by hardware-in- the-loop simulation

National Engineering Laboratory for Electric Vehicles, Beijing Institute of Technology Core researcher
Project: Development of a Double Mass Vibration Didactical Experimental Platform

Advisor: Yuan Zou June 2018 – December 2018

- Completed parameter matching and selection of electrical components according to the syllabus
- Established vehicle CAN protocol of platform
- Realize real-time parameter adjustment and operation status display of the platform based on LabVIEW
- Accomplished verification of the platform by based on the requirements of the course

PUBLICATIONS

Journal:

[1] **R Zou**, L Fan, Y Dong, S Zheng, C Hu. DQL Energy Management: An Online-Updated Algorithm and Its Application in Fix-Line Hybrid Electric Vehicle[J]. Energy, 2021, 225: 120174.

[2] L Fan, Y Zhang, H Dou, **R Zou**. Design of An Integrated Energy Management Strategy for A Plug-In Hybrid Electric Bus[J]. Journal of Power Sources, 2020, 448: 227391.

[3] C Hu, C Yang, X Shi, **R Zou**, L Liu, H Chen. Investigation of Rotating Stall in Radial Vaneless Diffusers with Asymmetric Inflow[J]. Aerospace Science and Technology, volume 96, 2020, 105546.

[4] J Wu, Y Zou, X Zhang, G Du, G Du, **R Zou**. A hierarchical energy management for hybrid electric tracked vehicle considering velocity planning with pseudospectral method[J]. IEEE Transactions on Transportation Electrification, 2020, 6(2): 703-716.

[5] F Jiao, Y Zou, X Zhang, **R Zou**. Multi-objective optimal energy management of microgrids including plug-in electric vehicles with the vehicle to grid capability for energy resources scheduling[J]. Proceedings of the Institution of Mechanical Engineers, Part A: Journal of Power and Energy, 2020: 0957650920942998.

Conference:

[6] **R Zou**, Y Zou, Y Dong, L Fan. A Self-Adaptive Energy Management Strategy for Plug-in Hybrid Electric Vehicle Based on Deep Q Learning[C]. 4th International Conference on Artificial Intelligence, Automation and Control Technologies, Hangzhou, 2020.

[7] X Cui, **R Zou**, M Gu, Y Zou. Urban Subway Vehicle Dynamic Modelling and Simulation[C]. 2019 International Conference on Cloud Technology and Communication Engineering, Wuhan, 2019.

HONORS & AWARDS

- Second Prize Academic Scholarship in September 2018
- First Prize Academic Scholarship in September 2017
- Second Prize in the 3rd National Undergraduate IOT Design Contest in May 2016
- Third Prize Academic Scholarship in September 2014

SKILLS & OTHER INFORMATION

Computer Skills: MS Office (Word, Excel, PowerPoint, Access); MATLAB (Simulink), LabVIEW, Python, C, DSPACE, AutoCAD, LaTex, Blender

Interests: Powerlifting; Reading; Hiking