

Axiu Mao

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EDUCATION BACKGROUND

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| Ph.D. | City University of Hong Kong, Hong Kong
Jockey Club College of Veterinary Medicine and Life Sciences
Department of Infectious Diseases and Public Health GPA: 3.96/4.30
Supervisor: Dr. Kai Liu | Oct. 2019 - Present |
| B.S. | China Jiliang University, China
College of Quality and Safty Engineering
Quality Management Engineering GPA: 3.99/5.00 | Sep. 2015 - Jun. 2019 |

PROFESSIONAL EXPERIENCE

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| PT-RA | City University of Hong Kong, Hong Kong
Jockey Club College of Veterinary Medicine and Life Sciences
Department of Infectious Diseases and Public Health | Sep. 2021 - Present |
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RESEARCH INTERESTS

Animal Activity Recognition (AAR), Sound Detection, Animal Welfare, Machine Learning, Deep Learning, Wearable Sensors, Internet of Things (IoT)

PUBLICATIONS

Refereed Journal Articles

- [*ANIMALS*] FedAAR: A Novel Federated Learning Framework for Animal Activity Recognition with Wearable Sensors
Axiu Mao, Endai Huang, Haiming Gan, Kai Liu*
Animals, Aug, **2022**.
- [*COMPAG*] Automated detection and analysis of piglet suckling behaviour using high-accuracy amodal instance segmentation
Haiming Gan, Mingqiang Ou, Chengpeng Li, Xiarui Wang, Jingfeng Guo, **Axiu Mao**, Maria Camila Ceballos, Thomas D. Parsons, Kai Liu*, Yueju Xue*
Computers and Electronics in Agriculture, Aug, **2022**.
- [*J. R. Soc. Interface*] Automated identification of chicken distress vocalisations using deep learning models
Axiu Mao, Claire S. E. Giraudet, Kai Liu*, Inês De Almeida Nolasco, Zhiqin Xie, Zhixun Xie, Yue Gao,

James Theobald, Devaki Bhatta, Rebecca Stewart, and Alan G. McElligott*

Journal of the Royal Society Interface, Jun, **2022**.

4. [COMPAG] Center Clustering Network Improves Piglet Counting Under Occlusion
Endai Huang, **Axiu Mao**, Haiming Gan, Maria Camila Ceballos, Thomas D. Parsons, Yueju Xue, Kai Liu*
Computers and Electronics in Agriculture, Oct, **2021**.
5. [SENSORS] Cross-Modality Interaction Network for Equine Activity Recognition Using Imbalanced Multi-Modal Data
Axiu Mao, Endai Huang, Haiming Gan, Rebecca S. V. Parkes, Weitao Xu, Kai Liu*
Sensors, Sep, **2021**.

Conference Proceedings

1. [ECPLF'2022] Uniting farms: Federated learning for sensor-based animal activity recognition
Axiu Mao, Endai Huang, Haiming Gan, and Kai Liu*
10th European Conference on Precision Livestock Farming (ECPLF), accepted but not yet published, **2022**.
2. [ECPLF'2022] Occlusion Resistant Spatial Analysis of Pig Distribution Pattern in Farrowing Pens Using Center Clustering Network
Endai Huang, **Axiu Mao**, Haiming Gan, and Kai Liu*
10th European Conference on Precision Livestock Farming (ECPLF), accepted but not yet published, **2022**.
3. [ISAEW'2021] Cross-Modality Interaction Network for Equine Activity Recognition Using Time-Series Motion Data
Axiu Mao, Endai Huang, Weitao Xu, Kai Liu*
International Symposium on Animal Environment and Welfare (ISAEW), Oct, **2021**.
4. [ISAEW'2021] A Key Frame Selection Method for Creating Deep Learning Training Set in Animal Research Involving Time-Series Video Data
Endai Huang, **Axiu Mao**, Haiming Gan, Kai Liu*
International Symposium on Animal Environment and Welfare (ISAEW), Oct, **2021**.
5. [ASABE'2021] Capacity Limit of Deep Learning Methods on Scenarios of Pigs in Farrowing Pen under Occlusion
Endai Huang, **Axiu Mao**, Maria Camila Ceballos, Thomas D. Parsons, Kai Liu*
ASABE Annual International Virtual Meeting (ASABE), Jul, **2021**.
6. [ACPLF'2020] Deep Learning-based Assessment of Laying-hen Feather Conditions Using Color and Thermal Images
Endai Huang, **Axiu Mao**, Kai Liu*, Yueju, Xue
2nd Asian Conference on Precision Livestock Farming (ACPLF), Oct, **2020**.

Under-Review Manuscripts

1. Occlusion-Resistant Instance Segmentation of Piglets in Farrowing Pens Using Center Clustering Network

Endai Huang, **Axiu Mao**, Yongjian Wu, Haiming Gan, Maria Camila Ceballos, Thomas D. Parsons, Junhui Hou, Kai Liu*

Submit to International Journal of Computer Vision (IJCV), <https://arxiv.org/abs/2206.01942>, 2022.

2. A Semi-Supervised Generative Adversarial Network for Amodal Instance Segmentation of Piglets in Farrowing Pens

Endai Huang, Zheng He, **Axiu Mao**, Weitao Xu, Maria Camila Ceballos, Thomas D. Parsons, Kai Liu*

Submit to Computers and Electronics in Agriculture (COMPAG), <https://arxiv.org/abs/2206.01942>, 2022.

Preprints

1. Effectiveness of quarantine measure on transmission dynamics of COVID-19 in Hong Kong
Hsiang-Yu Yuan*, **Axiu Mao**, Guiyuan Han, Hsiangkuo Yuan, Dirk Pfeiffer
medRxiv, <https://www.medrxiv.org/content/10.1101/2020.04.09.20059006v1>, 2020.
2. The importance of the timing of quarantine measures before symptom onset to prevent COVID-19 outbreaks-illustrated by Hong Kong's intervention model
Hsiang-Yu Yuan*, Guiyuan Han, Hsiangkuo Yuan, Susanne Pfeiffer, **Axiu Mao**, Lindsey Wu, Dirk Pfeiffer
medRxiv, <https://www.medrxiv.org/content/10.1101/2020.05.03.20089482v1>, 2020.

AWARDS AND HONORS

- Outstanding Graduate Student Paper and Presentation Award at 2021 International Symposium on Animal Environment and Welfare, Chongqing, China Oct. 2021
- Outstanding Graduates of Zhejiang Province Jun. 2019

PROFESSIONAL ACTIVITIES

Journal Reviewers

- PeerJ
- USPLF2023

Conference Presentations

- ECPLF 2022 2022
- ISAEW 2021 Oct. 2021