Axiu Mao

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EDUCATION BACKGROUND

Ph.D. City University of Hong Kong, Hong Kong — Oct. 2019 - Present
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

B.S. China Jiliang University, China — Sep. 2015 - Jun. 2019
College of Quality and Safty Engineering
Quality Management Engineering | GPA: 3.99/5.00

PROFESSIONAL EXPERIENCE

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

RESEARCH INTERESTS

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

PUBLICATIONS

Refereed Journal Articles

1. [*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**.*

2. [*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**.*

3. [*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), Aug, **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), Aug, **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

- Research Tuition Scholarship (RTS), City University of Hong Kong Sep.2022
- 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
- Meritorious Winner, Mathematical Contest in Modeling (MCM) May. 2018

PROFESSIONAL ACTIVITIES

Journal Reviewers

- PeerJ
- USPLF2023

Conference Presentations

- ECPLF 2022 2022
- ISAEW 2021 Oct. 2021