Abstract

# Artificial intelligence and applications in mouse detection and tracking.

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## Abstract:

The study of mouse social behaviours has been increasingly undertaken in neuroscience research. However, automated quantification of mouse behaviours from the videos of interacting mice is still a challenging problem, where object tracking plays a key role in locating mice in their living spaces. In this talk, we propose a novel method to continuously detect and track several mice and individual parts without requiring any specific tagging. We evaluate our proposed approach against several baselines on our new datasets, where the results show that our method outperforms the other state-of-the-art approaches in terms of accuracy.

**Keywords:** Mouse part detection, geometric constraint, Bayesian Integer Linear Programming Model.

## Biography:

Dr. Huiyu Zhou currently is a Reader at Department of Informatics, University of Leicester, United Kingdom. He has published over 200 peer-reviewed papers in the field. He was the recipient of "CVIU 2012 Most Cited Paper Award", "ICPRAM 2016 Best Paper Award" and was nominated for "ICPRAM 2017 Best Student Paper Award" and "MBEC 2006 Nightingale Prize". Four of his papers recently published by Elsevier were ranked as the ScienceDirect Top 25 Articles. Dr. Zhou serves as the Editor-in-Chief of Recent Advances in Electrical & Electronic Engineering and Associate Editor of "IEEE Transaction on Human-Machine Systems" and IEEE Access, and is on the Editorial Boards of several refereed journals.

## Publication of speakers:

1.  Huiyu Zhou, Commuter value perceptions in peak avoidance behavior: An empirical study in the Beijing subway system, Transportation Research Part A: Policy and Practice, Volume 139, September 2020, Pages 70-84

2.  Huiyu Zhou, A route planning mechanism for supermarket shuttle service based on taxi traces, Research in Transportation Business & Management, Available online 11 June 2020, 100502.

3.  Huiyu Zhou, Insider Threat Risk Prediction based on Bayesian Network, Computers & Security, Volume 96, September 2020, 101908

4.  Huiyu Zhou, Texture synthesis quality assessment using perceptual texture similarity, Knowledge-Based Systems, Volume 194, 22 April 2020, 105591.

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