AI in Entomology
Wednesday 3 July 2024, 09:15 – 17:30
Syngenta, Jealott's Hill International Research Centre

09:15 – 09:45	Registration with refreshments
09:45 – 10:00	Welcome and introductions Emilie Aimé (RES Director of Publishing) and Jim Reay (Syngenta)
Session 1	
10:00 – 10:30	**Mark O'Neill, Tumbling Dice Ltd & Rob Lind, Syngenta** Linnaeus versus the Matrix: the rise of AI in Insect Science
10:30 – 10:45	**Joris Mattheijssens, Ghent University** Computer vision monitoring of kiwiberry pollination
10:45 – 11:00	**Bo Li, Syngenta** High-throughput Drosophila activity analysis by video-based Multi-object tracking
11:00 – 11:20	Refreshment break
Session 2	
11:20 – 11:50	**Toke Høye, Aarhus University (online)** Globally standardised species monitoring with insect camera traps and deep learning models
11:50 – 12:05	**Grace Skinner, UK Centre for Ecology & Hydrology (UKCEH)** The AMI-system: Novel findings through automated monitoring and AI identification of moths
12:05 – 12:20	**Song-Qua Ong, Aarhus University/Universiti Malaysia Sabah (online)** Insect diversity can be studied through Augmented Intelligence (Au.I) with the integration of human taxonomists, computer vision and deep learning
12:20 – 12:35	**Maximilian Sittinger, German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig (online)** Insect Detect: An open-source DIY camera trap for automated insect monitoring
12:35 – 14:00	Lunch with poster session and site tour
Session 3	
14:00 – 14:30	**Barbara Webb, University of Edinburgh** Insect-inspired AI

14:30 – 14:45	**Derek Long, University of Southern Queensland** AI-powered sensing app for silverleaf whitefly monitoring in the Australian cotton industry
14:45 – 15:00	**Karthik Ashok, Baker Consultants Ltd** AI-based Detection of Wireworm Acoustic Signals in Soil Environments
15:00 – 15:15	**Khaled Mostafa Hussein & Mohamed Hany Abdelfatah, October University for Modern Sciences and Arts (MSA) (online)** Tracking and directional movement classification of three mosquito species using Computer Vision and Deep Learning
15:15 – 15:45	Refreshment break

Session 4

15:45 – 16:15	**Richard Bomphrey, Royal Veterinary College** Neural networks in insect flight control and bioinspired aerial robotics
16:15 – 16:30	**Jack Hollister, University of Southampton & NHM** A Computer Vision-based species-level verification system of the British and Irish Lepidoptera collection within the NHM (London)
16:30-16:45	**Moshe Gish, University of Haifa (online)** Overcoming Extreme Responding in Entomophobia Studies with Artificial Intelligence
16:45-17:00	**Sébastien Loumeau, University of the Azores** Exploring the Future of Terceira's Native Forest: Predictive Modeling of Arthropod Community Composition with Recurrent Neural Networks
17:00 – 17:20	Panel discussion
17:20 – 17:30	Closing remarks

Poster Presentations

P1: Mukilan Deivarajan Suresh, Newcastle University
Rolling in the Deep (Learning): A way to Advance Entomological Biomonitoring

P2: Caitlin O'Farrell, University of Portsmouth
Can we use machine learning, as a substitute for human taphonomy facilities, to map and predict taphonomic change?

P3: Oscar Healy, Imperial College London
scAnt - a low cost platform to create coloured 3D models of insects

P4: Maria Anastasiadi, Cranfield University
Automated object detection and tracking methods for monitoring insect pollinators in Thailand

P5: Tim Lukins, Forest Research
Arthropod Anomaly Detection to Improve Machine Learning Classification

P6: Vasilis Vasileiadis, Syngenta
Biodiversity Sensor Project: Transforming how we measure above ground biodiversity in a climate change context

P7: Gregoire Noel, University of Liège
Insects detection and counting from entomological collections using deep learning methods

P8: Gytis Bernotas, Bristol Robotics Lab, University of West England
Sex identification of *Tenebrio molitor* using Convolutional Neural Networks

Online: Zsófia Varga-Szilay, ELTE Eötvös Loránd University
Detecting differences in foraging behaviour of *Bombus terrestris* on three plant species using computer vision-based methods

Convenors

- James Gilbert, University of Hull (Data SIG convenor)
- Mark O'Neill, Tumbling Dice Ltd (Electronic and Computing Technology SIG convenor)
- Rob Lind, Syngenta