



# IMVIP 2025

Irish Machine Vision and Image Processing Conference  
1st - 3rd September 2025, Derry~Londonderry



## Conference Programme

### Monday 1st Sept

**1:00pm: Conference Registration ([MU Building](#), Ulster University)**

**2:00pm: Keynote – Dr. Cornelia Fermuller**

*Learning to Play: AI Technologies for Supporting Violin Instruction and Motor Skill Acquisition*

**3:00pm – 3:40pm: Machine Learning Techniques & Applications I**

**Benchmarking EfficientTAM on FMO datasets**

*Senem Aktas, Charles Markham, John McDonald and Rozenn Dahyot.*

**Optimising Replay Memory Selection via Dimensionality Reduction Techniques in Continual Learning**

*Joe Murtagh, Reenu Mohandas, Ganesh Sistu, Ciarán Eising*

**3:40pm: Coffee**

**4:00pm – 5:40pm: Medical Imaging & Healthcare Applications I**

**Curated Datasets for Machine Learning-Based Modelling of Stimulated Osteoblasts-on-chip**

*Brian Collins, Dost Muhammed, Tanya Levingstone, Nicholas Dunne and Malika Bendeche*

**An Explainable Radiomics Framework for Differential Diagnosis of Multiple Sclerosis and Ischemic Stroke Lesions**

*Nighat Bibi, Kathleen M. Curran, Ronan P. Killeen and Jane Courtney*

## **Retraining is all you need: Few-shot fine-tuning for Cross-modality Domain Adaptation in Medical Imaging**

*Annisa Judya Sugiarti, Ray Burke, Jesús Martínez del Rincón and Simon Toft Sorensen*

## **Diffusion Model-based Data Augmentation Method for Fetal Head Ultrasound Segmentation**

*Fangyijie Wang, Kevin Whelan, Félix Balado, Kathleen M. Curran and Guénolé Silvestre*

## **Combining self-attention and convolution to understand OCT images**

*Abbas Haider, David Wright, Ruth Hogg, Hui Wang, Tunde Peto and Richard Gault*

# **Tuesday 2nd Sept**

## **9:30am: Keynote - Oisin Mac Aodha**

*Learning from Visual Data in the Wild*

## **10:30am – 11:15am: Coffee and Posters I**

### **Automated Segmentation of Brain Metastases in MRI Using Deep Transfer Learning Techniques**

*Eshwari Muralikrishna, Avneesh Dubey and Claudia Mazo*

### **Evaluation of 3D Gaussian Splatting in Plant Reconstruction**

*Aaron McAfee, Thomas Pluck, Rozenn Dahyot and Gerry Lacey*

### **Thermal Camera and LiDAR Sensor Calibration Pipeline Using ROS2**

*Carlos Gonzalez Visiedo and Jahan Zeb Gul*

### **AdMoteNet: Adaptive Network for Emotion Understanding in Visual Content**

*Riju Das, Sukriti Dhang, Mimi Zhang and Soumyabrata Dev*

### **A Computer Vision Technique for the Validation of Wildfire Models using a Desktop Apparatus**

*Conor Hackett, Rafael de Andrade Moral, Denise Rooney, Michelle Doran and Charles Markham*

### **Intelligent Point Prompt Generation for Interactive Segmentation**

*Victoria Porter, Iain Styles, Tim Curtis and Richard Gault*

### **Automated Classification of Pediatric Brain Tumor Location Using SIFT and Machine Learning**

*Ayse Keles, Ramin Ranjbarzadeh, Pinar Akdemir Ozisik and Malika Bendeche*

### **Real-Time Embedded High Resolution Object Detection from Unmanned Aerial Vehicles Using YOLOX**

*Richard Turner, Natasha Kholgade Banerjee and Sean Banerjee*

## **11:15am – 12:35pm: Robotics & Autonomous Systems**

### **A Closed-Loop Vision System Framework for Autonomous Spacecraft Rendezvous**

*Jake O'Brien, Gerard Lacey and James Murphy*

### **Multi-View Thermal Video Vision Transformer for Detecting Box Weight and Human Effort for Industrial Assistive Robots**

*Yu Liu, Yaswanth Alla, Natasha Kholgade Banerjee and Sean Banerjee*

### **Orientation Prediction for Robotic Manipulation: Angle Encoding Strategies for Linear Regression**

*Antonio Gambale, Sonya Coleman, Dermot Kerr, Philip Vance, Emmett Kerr, Cornelia Fermuller and Yiannis Aloimonos*

### **Lightweight CNN Benchmarks for Facial Emotion Recognition in Pepper Robot Applications**

*Jonathan Robinson, Philip Vance, Nazmul Siddique and Pratheepan Yogarajah*

## **12:35pm – 1:20pm: Lunch**

## **1:20pm – 3:00pm: Machine Learning Techniques & Applications II**

### **An Adaptive Motion Tracking Method for Sports Analytics**

*Samuel Venezia, Sonya Coleman and Dermot Kerr*

### **MiKAD: Memory-Infused Knowledge Networks for Manufacturing Anomaly Detection**

*Muhammad Rashid Rasheed, Sonya Coleman, Bryan Gardiner, Philip Vance, Cormac McAteer, Khoi Nguyen and Bryan Baker*

### **A Stochastic Birth-and-Death Approach for Street Furniture Geolocation in Urban Environments**

*Evan Murphy, Marco Viola and Vladimir Krylov*

### **Bridging the Reality Gap: A Framework for Synthetic Data Generation in Smart Manufacturing**

*Yasir Ijaz, Sonya Coleman, Dermot Kerr, Nazmul Siddique, Cormac McAteer, Bryan Baker and Khoi Nguyen*

### **Hyperspectral Fingerprinting for Plant Health**

*Melissa Melaugh, Sonya Coleman and Dermot Kerr*

## **3:00pm – 3:45pm: Coffee and Posters II**

### **AFS-MHMD: Adaptive Fusion Strategies for Multimodal Hateful Meme Detection**

*Himanshu Singh, Arnav Jain, Seema Wazarkar and Muskaan Singh*

## **Deep Learning Based Segmentation of Retinal Layers from OCT Imaging**

*Alex Baine, Abbas Haider, Ruth Hogg and Richard Gault*

## **Ablation Study on Convolutional Neural Network-Transformer Fusion**

*Lucas Hindes, Nazmul Siddique, Sonya Coleman and Philip Vance*

## **Exploring Deep Learning Approaches to Whole Slide Image Compression**

*Christopher Smith and Richard Gault*

## **WasteWatch: Intelligent Waste Level Detection**

*Benn Henderson, Sonya Coleman, Dermot Kerr and Justin Quinn*

## **A Convolutional Neural Network Bagging Ensemble for Human Emotion Classification using the AffectNet Dataset**

*Jonathan Robinson, Philip Vance, Nazmul Siddique and Pratheepan Yogarajah*

## **3:45pm – 5:25pm: Computer Vision & Image Processing**

### **FisheyeGaussianLift: BEV Feature Lifting for Surround-View Fisheye Camera Perception**

*Shubham Sonarghare, Prasad Deshpande, Ciaran Hogan, Deepika-Rani Kaliappan-Mahalingam and Ganesh Sistu*

### **SP-FGSM - Salient Pixel Masking for Improved Adversarial Attack Concealment**

*David McCaughey, Niall McLaughlin and Jesus Martinez-del-Rincon*

### **RandSaliencyAug++: Saliency-Based Data Augmentation for Improved Generalization Across Diverse Tasks**

*Teerath Kumar, Alessandra Mileo and Malika Bendeche*

### **Lightweight 3D GAN Inversion for TriPlaneNet: Balancing Reconstruction Fidelity and Computational Efficiency for Real-Time Applications**

*Assadig Abakr, Jane Courtney and Steven Davy*

### **One Model, Many Applications: Resource-Efficient Multi-Dataset Training for General-Purpose Image Classification**

*Tehseen Ullah, Steven Davy and John Kelleher*

## **5:30pm: IPRCS AGM**

## **7:00pm: Drink Reception and Conference Dinner - City Hotel**

## Wednesday 3rd Sept

### 9:30am: Keynote - Abulele Mditshwa

*Leveraging AWS Rekognition for Advanced Computer Vision Applications: Industry Use Cases and Best Practices*

### 10:30am: Coffee

### 11:00am – 12:00pm: Medical Imaging & Healthcare Applications II

#### Sins of Omission: How Class Imbalance Undermines Parasite Detection in Microscopy Images

*Thabang Isaka, Claire Wynne and Jane Courtney*

#### High Dynamic Range Tone Mapping for Confocal Microscopy Images

*Yelyzaveta Razumovska, Allister Pattison, Iain Styles and Richard Gault*

#### MRUF-Net: A U-Net Based Retinal Vessel Segmentation with Retinex Contrast Enhancement and Focal-Weighted loss Function

*Hossein Komijani, Bryan Gardiner, Pratheepan Yogarajah and Dermot Kerr*

### 12:00pm: Lunch