Name	Organisation	Link	Title of Abstract	Description
Shao Hongxu	AXA Insurance Singapore	https://www.youtube.com/watch?v=L0fXuYXd088	Tic Tac Toe game agent with Reinforcement Learning model	An quick introduction for 1 of my side project, to create a Tic Tac Toe game agent with Reinforcement Learning model with pytorch
Christian Alvin H. Buhat, Destiny SM. Lutero, Yancee H. Olave, Monica C. Torres, Jomar F. Rabajante	Institute of Mathematical Sciences and Physics, University of the Philippines Los Banos	https://youtu.be/GfMX83b42NU	Agent Based Model of COVID-19 Infection inside a Train Wagon using NetLogo	The model simulates the spread of COVID-19, an infectious disease declared as a pandemic, in a confined space. In this study, we consider a train wagon. The model explores the effects of factors such as crowd density, the protection level of individuals against infection, and initial number of infected individuals. We determine these effects under the presence or absence of social distancing protocol, and interaction among individuals (infected or not) in a train wagon. Results from our model can help policy makers in their decisions with regards to the new normal in trains, and in other mass transportation system as well.
Matias Quintana, Stefano Schiavo, Tham Kwok Wai, Clayton Miller	National University of Singapore	https://youtu.be/2AS5h2tVvnU	Balancing thermal comfort datasets: We GAN, but should we?	Thermal comfort assessment for the built environment has become more available to analysts and researchers due to the proliferation of sensors and subjective feedback methods. These data can be used for modeling comfort behavior to support design and operations towards energy efficiency and well-being. Occupant subjective feedback by nature is imbalanced as indoor conditions are designed for comfort and responses indicating otherwise are less common. This situation creates a scenario for the machine learning workflow where class balancing as a pre-processing step might be valuable for thermal comfort classification. This paper investigates the various thermal comfort dataset class balancing techniques from the literature and proposes a new modified conditional Generative Adversarial Network (GAN), comfortGAN, to address this imbalance scenario. These approaches are applied to three publicly available datasets, ranging from 30 and 67 participants to a global collection of thermal comfort datasets, with 1,474, 2,067, and 66,397 data points, respectively. This work finds that a classification model trained on a balanced dataset, comprised of real and generated samples from comfortGAN, has higher performance (increase between 4% and 17% in classification accuracy) than other augmentation methods tested. However, when the number of classes available in the data is reduced to three, the increase in performance shrinks to 1-2%. These results illustrate that class balancing for thermal comfort modeling is beneficial using advanced techniques such as GANs, but its value is diminished in certain scenarios. A discussion is provided to assist potential users in determining for which scenarios this process is useful and which method works best.
Garima Sharma	Monash University	https://youtu.be/mchtKq-fjJM	Automatic group affect analysis	In day to day life people like to spend time in a company. People are sharing large number of information online. This gives us the opportunity to use this perceived affect for various tasks. Most of the work in this area has been restricted to controlled environments. In this paper, we explore the group level emotion in a real-world environment. There are several challenges involved in moving from a controlled environment to real-world scenarios such as face tracking limitations, illumination variations, occlusion and type of gatherings. As an attempt to address these challenges,we propose a 'Video level Group AFfect (VGAF)' dataset containing 4K videos downloaded from the web. The collected videos have a large variations in terms of gender, ethnicity, the type of social event, number of people, pose, etc.
Jiafei Duan, Samson Yu, Hui Li Tan, Cheston Tan	A*STAR Artificial Intelligence Initiative, Institute for Infocomm Research, A*STAR	https://www.youtube.com/watch?v=nZAeqJqGe8E	ActioNet: An Interactive End-to-End Platform For Task-based Data Collection and Augmentation in 3D Environment	The problem of task planning for artificial agents remains largely unsolved. While there have been increasing interest in data-driven approach for the study of task planning for artificial agents, large-scale comprehensive task-based dataset remains a bottleneck. Hence, we present ActioNet, an interactive end-to-end platform for data collection and augmentation of task-based dataset in the 3D environment and we have also collected the largest task-based dataset of over 3000 hierarchical task structure data and annotated video data across 65 individual Household tasks and it was further upscale by 50 fold into 150,000 annotated task-based video dataset. With the aim of having such a platform and dataset, we can catalyze research in the field of Embodied AI.
Laura Zanella, Yannick Toussaint	LORIA (Université de Lorraine, CNRS, Inria)	https://www.youtube.com/watch?v=fqE8qZNLAoq&t=4s	A Deep Learning Approach for Biomolecular Event Extraction in Scientific Documents	Biomolecular scientific documents are producing very fast; however, information extraction techniques applied to analyze these documents are slow, inaccurate and the extraction of knowledge is performed in a superficial way, causing that the inference of new knowledge may not be being exploited. Therefore, the development of an event extraction model is proposed in this work, in order to extract more accurately and deeply the knowledge that can be presented in biomolecular text resources. For this purpose, a deep learning architecture based on Bidirectional Long Short Memory and Convolutional layers is presented. For the experiments, the performance of the model can be divided in three main stages, entities identification and classification, triggers identification and classification, events identification and classification. Finally, in this poster is shown a summary with the current limitations of event extraction in the state of the art.
Saeid Amiri	SUNY Binghamton	https://youtu.be/fZClCV2bQ5U	Multi-modal Predicate Identification using Dynamically Learned Robot Controllers	Service robots capable of executing multiple actions need to use multi-modal sensory information to recognize object properties. In this work, we are modelling the problem of predicate identification using MOMDP controllers where the observation function is learned from dataset
Joaquim de Moura, Jorge Novo, Marcos Ortega	University of A Coruña	https://youtu.be/utJonFjXNWc	Deep Feature Analysis in a Transfer Learning-based Approach for the Automatic Identification of DME	Diabetic Macular Edema (DME) is one of the most common causes of vision impairment and blindness in individuals with diabetes. Among the different imaging modalities, Optical Coherence Tomography (OCT) is a non-invasive ophthalmological imaging technique that is commonly used for the diagnosis, monitoring and treatment of DME. In this context, this paper proposes a new methodology for the automatic classification of DME using OCT images. Firstly, the method extracts a set of deep features from the target OCT images using a transfer learning-based approach. Then, the most relevant subset of deep features is selected using different feature selection strategies. Finally, a machine learning approach is applied to test the potential of the implemented method. The proposed methodology was validated using an OCT image dataset retrieved from 400 different patients, being 200 with DME and 200 normal cases. The proposed system achieved satisfactory results, reaching a best accuracy of 97.50%, using only 14.65% of the deep features in the classification of this ocular pathology, demonstrating also its competitive performance with respect to others approaches of the state-of-the-art.
M Ganesh Kumar	Integrative Sciences and Engineering, NUS	https://youtu.be/dq6s2At6a6Q	Trying to learn schemas for few-shot learning	Schemas are vaguely defined as a framework of knowledge where chunks of information are associated with one another while having placeholders to rapidly integrate new information to make inferences or perform few-shot learning. However, we do not have a mechanistic definition of what schema is and how it is learnt and utilized in the brain by neural networks. My research is an attempt to model the behavioral performance and hopefully the mechanism of schemas. The video an introduction to my preliminary result for my thesis at National University of Singapore.