# Project Topics

|  |  | Constructing a clean image from a foggy/rainy/snowy image |
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|  |  | How to update the final layer of a pre-trained model, if new classes come in the target dataset. |
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|  |  | Consider a pretrained segmentation model. The task is to fit the model into a GPU of 8 GB memory so that the performance of the compressed model does not degrade beyond 5% of that obtained by the original model. |
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|  |  | Developing tool for detecting and counting unique animal characters in a wildlife video clip. |
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|  |  | Enhance the object detection model to detect faster moving object, exploration of limits |
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|  |  | Consider a pretrained segmentation model. The task is to finetune the model on an unsupervised liver tumor segmentation dataset to obtain tumor segmentation masks. |
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|  |  | Generative AI for Data augmentation in medical images |
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|  |  | Detection of target private classes in unsupervised domain adaptation |
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|  |  | Speed detection of vehicles from video clip using a single model in different extreme weather conditions |
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|  |  | Developing a unified model for more than one domains for classification task. |
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|  |  | Analysing the progress of feature distribution or statistics in intermediate layers during training and developement of a tool for it. |
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|  |  | Develop a tool to analyze the VQVAE representations obtained on two parallel datasets: a) clean images b) images suffering from noise impact (e.g. rain, snow). Your aim is to develop VQVAE representations of both the types of dataset. Then you will comeup with tools to visually compare the representations obtained on the two parallel datasets. The codebook comparison also needs to be done. |
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|  |  | Developing a tool which can convert the raw technical/mathematical hand-written scanned images in english language (with symbols from greek, latin etc.) into a proper latex document. |
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|  |  | Model for detecting the objects on straight rail track (upto 1km) |
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