**Section 1 : Topic Submission Form**

This form should be submitted by the mentioned deadline.

Name:                               Sagarika Shukla

Student Number:              PN1135379

Course: LJMU Master in Machine Learning and AI April 2024

**Fill your topic/s below**

# Project Title/Area 1: Design a diagnostic tool for the differentiation of skin cancer images

Dataset: HAM10000 (HUMAN Against Machine) dataset   (https://datasets.activeloop.ai/docs/ml/datasets/ham10000-dataset/)

Description:                                                                                  \_\_\_

1. The HAM10000 dataset, a large collection of multi-source dermatoscopic images of common pigmented skin lesions

[Philipp Tschandl](https://pubmed.ncbi.nlm.nih.gov/?term=Tschandl%20P%5BAuthor%5D),a,1 [Cliff Rosendahl](https://pubmed.ncbi.nlm.nih.gov/?term=Rosendahl%20C%5BAuthor%5D),2 and [Harald Kittler](https://pubmed.ncbi.nlm.nih.gov/?term=Kittler%20H%5BAuthor%5D)1

# Advancements of Skin Cancer Classification using Transfer Learning Segmentation. [Kiran Kumar Kaveti](https://ieeexplore.ieee.org/author/612448678253678); [Makineni Sai Ravali](https://ieeexplore.ieee.org/author/542055065224362); [Vaddula Baby Sravya](https://ieeexplore.ieee.org/author/369948836039748); [Boddu Deepthi](https://ieeexplore.ieee.org/author/310149164054498) (https://ieeexplore.ieee.org/document/10575608)

# Melanoma Skin Lesions Classification using Deep Convolutional Neural Network with Transfer Learning(<https://ieeexplore.ieee.org/document/9425117>)

# Design and validation of a new machine-learning-based diagnostic tool for the differentiation of dermatoscopic skin cancer images((https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10104315/)

# Label-Efficient Self-Supervised Federated Learning for Tackling Data Heterogeneity in Medical Imaging(<https://paperswithcode.com/paper/label-efficient-self-supervised-federated>)

Project Title/Area 2:   A new approach to Finanacial time series forecasting

Dataset: SP500 Stock Price by Ticker 06.08.2024(10years) (https://www.kaggle.com/datasets/paikim/sp500-stock-price-by-ticker-06-08-202410years)

Description:

1. ShoTS Forecasting: Short Time SeriesForecasting for Management Research(https://onlinelibrary.wiley.com/doi/epdf/10.1111/1467-8551.12624)

### [A bi‐level ensemble learning approach to complex time series forecasting: Taking exchange rates as an example](https://ljmu.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_proquest_journals_2844395262&context=PC&vid=44JMU_INST:44JMU_VU1&lang=en&adaptor=Primo%20Central&tab=Everything&query=any%2Ccontains%2Ctime%20series%20forecasting&offset=10). Hao, Jun ; Feng, Qian Qian ; Li, Jianping ; Sun, Xiaolei

### [A new linear & nonlinear artificial neural network model for time series forecasting](https://ljmu.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_webofscience_primary_000316516000011&context=PC&vid=44JMU_INST:44JMU_VU1&lang=en&adaptor=Primo%20Central&tab=Everything&query=any%2Ccontains%2Ctime%20series%20forecasting&offset=0).

Yolcu, Ufuk ; Egrioglu, Erol ; Aladag, Cagdas H.

### [Applying k‐nearest neighbors to time series forecasting: Two new approaches](https://ljmu.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_proquest_journals_3074207218&context=PC&vid=44JMU_INST:44JMU_VU1&lang=en&adaptor=Primo%20Central&tab=Everything&query=any%2Ccontains%2Ctime%20series%20forecasting&offset=0). Tajmouati, Samya ; Wahbi, Bouazza E. L. ; Bedoui, Adel ; Abarda, Abdallah ; Dakkon, Mohamed

1. A novel hybrid model combining βSARMA and LSTM for time series forecasting Bhupendra Kumar a , Sunil a , Neha Yadav b,∗

Project Title/Area 3: To use advanced techniques in object detection and recognition, such as using deep learning models like Faster R-CNN, YOLO, or SSD. Focus on improving accuracy and speed.

Dataset:  COCO dataset

Description:

### 1>[Computer vision using deep learning : neural network architectures with Python and Keras](https://ljmu.primo.exlibrisgroup.com/discovery/fulldisplay?docid=alma9911587915103826&context=L&vid=44JMU_INST:44JMU_VU1&lang=en&search_scope=MyInst_and_CI&adaptor=Local%20Search%20Engine&tab=Everything&query=any%2Ccontains%2Cobject%20detection%20recognition%20deep%20learning&offset=0)

Verdhan, Vaibhav, author.

### 2> [Object recognition and detection with deep learning for autonomous driving applications](https://ljmu.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_webofscience_primary_000407917500005CitationCount&context=PC&vid=44JMU_INST:44JMU_VU1&lang=en&adaptor=Primo%20Central&tab=Everything&query=any%2Ccontains%2Cobject%20detection%20recognition%20deep%20learning&offset=0)

Uçar, Ayşegül ; Demir, Yakup ; Güzeliş, Cüneyt; Fortino, Giancarlo ; Yıldırım, Tülay

London, England: SAGE Publications

### 3> [A Review of Machine Learning and Deep Learning for Object Detection, Semantic Segmentation, and Human Action Recognition in Machine and Robotic Vision](https://ljmu.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_doaj_primary_oai_doaj_org_article_377d698d4c3140beb80428080e86a0bb&context=PC&vid=44JMU_INST:44JMU_VU1&lang=en&search_scope=MyInst_and_CI&adaptor=Primo%20Central&tab=Everything&query=any%2Ccontains%2Cobject%20detection%20recognition%20deep%20learning&offset=0)

Manakitsa, Nikoleta ; Maraslidis, George S ; Moysis, Lazaros ; Fragulis, George F

### 4> [Computer Vision: Object Recognition with Deep Learning Applied to Fashion Items Detection in Images](https://ljmu.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_proquest_journals_2689289703&context=PC&vid=44JMU_INST:44JMU_VU1&lang=en&search_scope=MyInst_and_CI&adaptor=Primo%20Central&tab=Everything&query=any%2Ccontains%2Cobject%20detection%20recognition%20deep%20learning&facet=rtype%2Cinclude%2Cdissertations&offset=0)

### 5>[Joint Neural Networks for One-Shot Object Recognition and Detection](https://ljmu.primo.exlibrisgroup.com/discovery/fulldisplay?docid=cdi_proquest_journals_2579510567&context=PC&vid=44JMU_INST:44JMU_VU1&lang=en&search_scope=MyInst_and_CI&adaptor=Primo%20Central&tab=Everything&query=any%2Ccontains%2Cobject%20detection%20recognition%20deep%20learning&facet=rtype%2Cinclude%2Cdissertations&offset=0)

Vargas Cortes, Camilo Jose

**Fill in this section if a member of staff has agreed to be your supervisor:**

Member of Staff:    Mohammed Maaz                  \_\_\_\_

If you have found a supervisor then you and the member of staff who agreed to supervise your project should sign below.

*Sagarika Shukla*\_

Student Signature                                                                         Supervisor Signature

\_\_\_\_14/07/2024\_\_\_\_\_\_\_\_\_                                                                            \_\_\_\_\_\_\_\_\_\_\_\_

Date                                                                                               Date

**Section 2 : Topic Selection Research**

**Table 1 : Topic 1**

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| **Title** | **Link to the Paper** | **Understanding of the Dataset** | **Understanding the Methodology Used** | **Dataset Link** |
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**Table 2 : Topic 2**

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**Table 3 : Topic 3**

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| **Title** | **Link to the Paper** | **Understanding of the Dataset** | **Understanding the Methodology Used** | **Dataset Link** |
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