**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: II & III | Date: 19.10.2023 |

|  |
| --- |
| 1. Development of Python program to implement Linear Regression operation. |
| 2. Write a program to demonstrate the linear severability for the given data. |
| 3. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.  Data: Two class, Learning rate: 0.03, Activation: Linear, Hidden Layers: 02, and Hidden neurons: 03. |
| 4. Implement the Pre-Trained DenseNet50 to classify a labelled binary data. Compute the detection accuracy of Music Data and present the Confusion-Matrix. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: II & III | Date: 19.10.2023 |

|  |
| --- |
| 1. Development of Python program to implement Logistic Regression operation. |
| 1. Write a program to demonstrate the Gradient Descent operation. |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Spiral, Learning rate: 0.1, Activation: Linear, Hidden Layers: 02, and Hidden neurons: 03. |
| 1. Implement the Pre-Trained DenseNet101 to classify a labelled binary data. Compute the detection accuracy of Foot-Ulcer and present the Confusion-Matrix. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: III | Date: 19.10.2023 |

|  |
| --- |
| 1. Construction of two-class confusion matrix and verifying the necessary performance metrics, like Accuracy, Precision, Sensitivity and Specificity. |
| 1. Implement the necessary hyper-parameter tuning in Decision tree classifier to improve the classification result. Demonstrate the result using a chosen Python program |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Two class, Learning rate: 0.03, Activation: TanH, Hidden Layers: 02, and Hidden neurons: 02. |
| 1. Implement the Pre-Trained DenseNet50 to classify a labelled binary data. Compute the detection accuracy on Music data. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: II & III | Date: 19.10.2023 |

|  |
| --- |
| 1. Construction of multi-class confusion matrix and verify the necessary performance metrics, like Accuracy, Precision, Sensitivity and Specificity. |
| 1. Implement the necessary hyper-parameter tuning in K-Nearest Neighbour classifier to improve the classification result. Demonstrate the result using a chosen Python program. |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Multi class, Learning rate: 0.01, Activation: ReLU, Hidden Layers: 04, and Hidden neurons: 02. |
| 1. Implement the Pre-Trained AlexNet to classify a labelled binary data. Compute the detection accuracy of Foot-Ulcer data. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: II & III | Date: 19.10.2023 |

|  |
| --- |
| 1. Implementation of the Python program for the classification task on the chosen database (Breastcancer.csv) using the K-Nearest Neighbour (KNN) classifier. |
| 1. Implement the necessary hyper-parameter tuning in K-Nearest Neighbour classifier to improve the classification result. Demonstrate the result using a chosen Python program. |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Multi class, Learning rate: 0.01, Activation: TanH, Hidden Layers: 04, and Hidden neurons: 02. |
| 1. Implement the Pre-Trained DenseNet121 to classify a labelled binary data. Compute the detection accuracy of COVID19 database. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: II & III | Date: 19.10.2023 |

|  |
| --- |
| 1. Development of Python program to demonstrate over fitting problem. |
| 1. Implement the necessary hyper-parameter tuning in Random Forest classifier to improve the classification result. Demonstrate the result using a chosen Python program with a chosen database. |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Multi class, Learning rate: 0.01, Activation: Sigmoid, Hidden Layers: 04, and Hidden neurons: 02. |
| 1. Implement the Pre-Trained DenseNet121 to classify a labelled binary data. Compute the detection accuracy on COVID19 database. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: III | Date: 19.10.2023 |

|  |
| --- |
| 1. Implement a Python program for the classification task on chosen database (Breastcancer.csv) using the Logistic Regression classifier and discuss the achieved result. |
| 1. Implement a Python program for the classification task on chosen database (Breastcancer.csv) using the Logistic Regression classifier with a possible hyperparameter tuning and record the achieved accuracy. |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Spiral, Learning rate: 0.01, Activation: TanH, Hidden Layers: 03, and Hidden neurons: 03. |
| 1. Implement the Pre-Trained DenseNet169 to classify a labelled binary data. Compute the detection accuracy on Foot-Ulcer database. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: II & III | Date: 19.10.2023 |

|  |
| --- |
| 1. Implementation of Python program for classification task on the chosen database (any database of your choice) using the Linear Regression classifier and discuss the achieved result. |
| 1. Implement the necessary hyper-parameter tuning in Linear Regression classifier to improve the classification result. Demonstrate the result using a chosen Python program. |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Circular, Learning rate: 0.01, Activation: ReLU, Hidden Layers: 02, and Hidden neurons: 02. |
| 1. Implement the Pre-Trained DenseNet201 to classify a labelled binary data. Compute the detection accuracy on Foot-Ulcer database. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: III | Date: 19.10.2023 |

|  |
| --- |
| 1. Implementation of Python program for the classification task on chosen database (Breastcancer.csv) using the Naïve Bayes classifier and discuss the achieved result. |
| 1. Implement the necessary hyper-parameter tuning in Naïve Bayes classifier to improve the classification result. Demonstrate the result using a chosen Python program. |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Multi class, Learning rate: 0.3, Activation: Sigmoid, Hidden Layers: 02, and Hidden neurons: 02. |
| 1. Implement the Pre-Trained DenseNet201 to classify a labelled binary data. Compute the detection accuracy on COVID19 database. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |

**SAVEETHA SCHOOL OF ENGINEERING**

**SAVEETHA INSTITUTE OF MEDICAL AND TECHNICAL SCIENCES UNIVERSITY PRACTICAL EXAMINATION**

**October 2023**

|  |  |  |
| --- | --- | --- |
| Sub Code: MLA0403 | Subject Name: Deep Learning for Image Analysis | |
| Branch: AI&DS | Year: II & III | Date: 19.10.2023 |

|  |
| --- |
| 1. Implementation of Python program for the classification task on chosen database (Breastcancer.csv) using the Support Vector Machine (SVM) classifier and discuss the achieved result. |
| 1. Implement the necessary hyper-parameter tuning in Support Vector Machine classifier to improve the classification result. Demonstrate the result using a chosen Python program. |
| 1. Construct a suitable Neural-Network (NN) architecture for the following specification and verify the result. Write your observation regarding input, NN structure, activation and the achieved result.   Data: Multi class, Learning rate: 0.01, Activation: TanH, Hidden Layers: 03, and Hidden neurons: 03. |
| 1. Implement the Pre-Trained ResNet101 to classify a labelled binary data. Compute the detection accuracy on Music database. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experiment** | **Aim, and Procedure**  **(20)** | **Algorithm and Flow Chart**  **(30)** | **Program and Implementation**  **(30)** | **Execution and Output**  **(20)** | **Total**  **(100)** |
| **Question 1&2 (50)** |  |  |  |  |  |
| **Question 3&4 (50)** |  |  |  |  |