✓ Which of the following is not a type of machine learning algorithm? * 1/1

- ○ Linear Regression
- ○ Decision Tree
- ◉ Convolutional Neural Network ✓
- ○ K-Nearest Neighbors

✓ Deep learning models are: * 1/1

- ○ Shallow neural networks
- ◉ Neural networks with multiple hidden layers ✓
- ○ Neural networks without hidden layers
- ○ Neural networks trained on small datasets

✓ Which activation function is commonly used in the output layer of a classification problem? *1/1

- ○ ReLU
- ◉ Sigmoid ✓
- ○ Tanh
- ○ Linear

✓ OpenCV is a library for: * 1/1

- ○ Natural Language Processing
- ◉ Computer Vision ✓
- ○ Data Visualization
- ○ Machine Learning

✓ Which OpenCV function is used for image resizing? * 1/1

- ◉ cv2.resize() ✓
- ○ cv2.cvtColor()
- ○ cv2.imshow()
- ○ cv2.waitKey()

✓ Tokenization in NLP refers to: * 2/2

- ☐ Converting text into numbers
- ☐ Removing stop words
- ☑ Breaking text into individual words or phrases ✓
- ☐ Converting text into a vector representation

✓ What is the purpose of stemming in NLP? * 2/2

- ○ To remove stop words
- ◉ To convert words to their root form ✓
- ○ To convert text into a vector representation
- ○ To identify named entities

✓ What is the command to create a new Git repository? * 1/1

- ◉ git init ✓
- ○ git clone
- ○ git add
- ○ git commit

✓ Which command is used to undo the last commit? * 1/1

- ◉ git reset ✓
- ○ git revert
- ○ git checkout
- ○ git push

✓ Which type of chart is best suited for visualizing trends over time? * 1/1

- ○ Bar Chart
- ○ Pie Chart
- ◉ Line Chart ✓
- ○ Histogram

✓ What is the purpose of a scatter plot? * 1/1

- ○ To show the distribution of a single variable
- ◉ To compare two or more variables ✓
- ○ To visualize trends over time
- ○ To show the composition of a whole

✓ Which algorithm is commonly used for clustering tasks? * 2/2

- ○ Linear Regression
- ◉ K-means clustering ✓
- ○ Decision Tree
- ○ Support Vector Machine

✓ What is the goal of model evaluation? * 2/2

- (●) To select the best model for a given task ✓
- ( ) To train a model on a dataset
- ( ) To preprocess data for modeling
- ( ) To deploy a model in production

✓ Which type of neural network is commonly used for image recognition tasks? *1/1

- ( ) Recurrent Neural Network (RNN)
- (●) Convolutional Neural Network (CNN) ✓
- ( ) Long Short-Term Memory (LSTM)
- ( ) Autoencoder

✓ What is the main purpose of using a dropout layer in a neural network? * 1/1

- ( ) To increase the learning rate
- ( ) To reduce the number of neurons
- (●) To prevent overfitting ✓
- ( ) To increase the number of layers

✓ Which of the following is a popular deep learning framework? * 1/1

- ○ GitHub
- ○ MySQL
- ○ Excel
- ◉ TensorFlow ✓

✓ In deep learning, what does "training" typically refer to? * 1/1

- ○ Creating random datasets
- ◉ Optimizing weights of the model using data ✓
- ○ Performing linear regression
- ○ Formatting data into tables

✓ What is the purpose of using backpropagation in deep learning, and how does it function? *2/2

- ○ To store the model's structure; functions by saving the neural network architecture
- ○ To increase the number of neurons; functions by duplicating layers
- ◉ To update the model's weights; functions by calculating gradients and adjusting them ✓
- ○ To initialize weights; functions by using random initialization

✓ What is the "vanishing gradient problem," and how is it addressed in deep learning? *2/2

- (●) When gradients become too small, slowing training; addressed using ReLU activation functions ✓
- ( ) When layers disappear during backpropagation; addressed using dropout
- ( ) When weights become too large, slowing learning; addressed using gradient clipping
- ( ) When gradients grow too large, causing divergence; addressed using batch normalization

✓ Which of the following is a key challenge in computer vision? * 1/1

- ( ) Option 1
- ( ) Real-time translation
- ( ) Speech recognition
- (●) Understanding visual ambiguity ✓

✓ Which algorithm is commonly used for face detection in computer vision? *1/1

- ( ) Naive Bayes
- (●) Viola-Jones ✓
- ( ) K-Nearest Neighbors
- ( ) Decision Trees

✓ What is the purpose of Convolutional Neural Networks (CNNs) in computer vision? *2/2

- ○ To perform data clustering
- ○ To enhance audio quality
- ◉ To process and recognize patterns in images using convolutional layers ✓
- ○ To generate textual descriptions of images

✓ Which technique is commonly used for reducing the dimensions of an image while preserving key features in computer vision? *2/2

- ◉ Pooling ✓
- ○ Gradient Descent
- ○ Data Augmentation
- ○ Dropout

✓ Word2Vec is an example of which NLP technique? * 1/1

- ○ Named entity recognition
- ○ Machine translation
- ○ Syntax tree generation
- ◉ Word embedding ✓

✓ Which of the following tasks involves analyzing the sentiment of a text? * 1/1

- ○ Machine translation
- ○ Part-of-speech tagging
- ◉ Sentiment analysis ✓
- ○ Text summarization

✓ Which NLP model is widely used for both machine translation and text generation due to its ability to handle sequential data? *2/2

- ○ Support Vector Machines
- ◉ Recurrent Neural Networks (RNNs) ✓
- ○ Naive Bayes Classifier
- ○ Random Forest

✓ In the context of NLP, what is the Bag of Words (BoW) model, and what is its limitation? *2/2

- ◉ A model that represents text as a bag of individual words without considering their order; its limitation is that it ignores word sequence and semantics. ✓
- ○ A model that represents text as sequences of characters; its limitation is that it does not handle word meanings well.
- ○ A model that ranks words by their frequency in a document; its limitation is that it loses word frequency information.
- ○ A model used to translate text into vectors; its limitation is that it struggles with long texts.

✓ What is the primary issue when AI systems make decisions without transparency? *1/1

- ○ Cost
- ○ Scalability
- ◉ Explainability ✓
- ○ Usability

✗ What role does ethical AI play in the development of autonomous weapons, and why is it a concern? *0/1

- ○ It ensures that weapons are faster; the concern is cost
- ○ It ensures that autonomous weapons are cost-effective; the concern is speed.
- ◉ It ensures that autonomous weapons are transparent; the concern is the black box problem. ✗
- ○ It ensures that weapons make decisions without human input; the concern is loss of control.

Correct answer

- ◉ It ensures that weapons make decisions without human input; the concern is loss of control.