Using device: CUDA

Task execution time: 0.65 seconds

## **Completed Tasks:**

Task 1.1: Load CIFAR-10 Dataset ✓

Task 1.2: Visualize CIFAR-10 Samples ✓

Task 1.3: Convert to Grayscale ✓

Task 2.1: Extract SIFT Features ✓

Task 2.2: Visualize SIFT Keypoints ✓

Task 3.1: Generate Codebook ✓

Task 3.2: Create BoVW Histograms ✓

Task 4.1: Train SVM Classifier ✓

Reset (Clear Task)

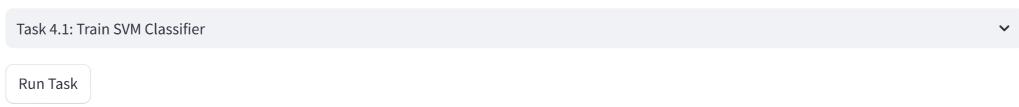
## CIFAR-10 Image Classification with BoVW and CNN

This application implements image classification on the CIFAR-10 dataset using:

- Bag of Visual Words (BoVW) model with SVM classifier
- Deep Learning approach with ResNet-18 CNN
- Data augmentation techniques

Follow the tasks step by step using the dropdown menu.

Select a task to run:



## Task 4.1: Train SVM Classifier



## **SVM Classification Results**

Accuracy: 0.1205

Precision: 0.1700

Recall: 0.1205

F1-Score: 0.0628

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a	utomobile -	0	11	6	5	5	18	6	7	6	936		-	800
	bird -	21	21	56	28	28	33	22	39	18	734			
	cat -	2	11	9	39	9	23	11	14	3	879		_	600
True	deer -	7	12	10	18	15	25	15	18	9	871			
	dog -	1	7	13	50	4	16	4	12	3	890		-	400
	frog -	1	8	12	38	5	21	6	12	4	893			
	horse -	0	2	2	10	8	14	6	19	0	939			200
	ship -	11	18	36	29	29	34	19	41	56	727		- 20	200
	truck -	0	9	3	7	8	4	2	8	5	954			
		airplane -	automobile -	- pird	cat -	deer -	- bop	frog -	horse -	- dihs	truck -	ı	-	0
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