

Detailed results for coffee species recognition dataset

Table 1: Performance metrics of CNN-KAN and simple CNN for coffee species recognition dataset. All results are presented as %, except for the standard deviation, which is expressed in percentage points.

Results for CNN-KAN architecture						
	Train dataset			Test dataset		
Trial no	acc.	spec.	rec.	acc.	spec.	rec.
1	100.0	100.0	100.0	96.43	100.0	92.31
2	100.0	100.0	100.0	92.86	93.33	92.31
3	100.0	100.0	100.0	100.0	100.0	100.0
4	100.0	100.0	100.0	92.86	100.0	84.62
5	100.0	100.0	100.0	100.0	100.0	100.0
6	100.0	100.0	100.0	96.43	100.0	92.31
7	100.0	100.0	100.0	96.43	100.0	92.31
8	100.0	100.0	100.0	92.86	100.0	84.62
9	100.0	100.0	100.0	100.0	100.0	100.0
10	100.0	100.0	100.0	100.0	100.0	100.0
Avg.	100.0	100.0	100.0	96.79	99.33	93.85
Std. Dev.	0.0	0.0	0.0	3.13	2.11	6.07

Results for simple CNN architecture						
	Train dataset			Test dataset		
Trial no	acc.	spec.	rec.	acc.	spec.	rec.
1	96.43	100.0	92.86	92.86	100.0	84.62
2	100.0	100.0	100.0	96.43	100.0	92.31
3	100.0	100.0	100.0	96.43	100.0	92.31
4	100.0	100.0	100.0	92.86	100.0	84.62
5	100.0	100.0	100.0	96.43	100.0	92.31
6	100.0	100.0	100.0	92.86	93.33	92.31
7	100.0	100.0	100.0	100.0	100.0	100.0
8	100.0	100.0	100.0	96.43	100.0	92.31
9	100.0	100.0	100.0	96.43	100.0	92.31
10	100.0	100.0	100.0	96.43	100.0	92.31
Avg.	99.64	100.0	99.29	95.72	99.33	91.54
Std. Dev.	1.13	0.0	2.26	2.26	2.11	4.37

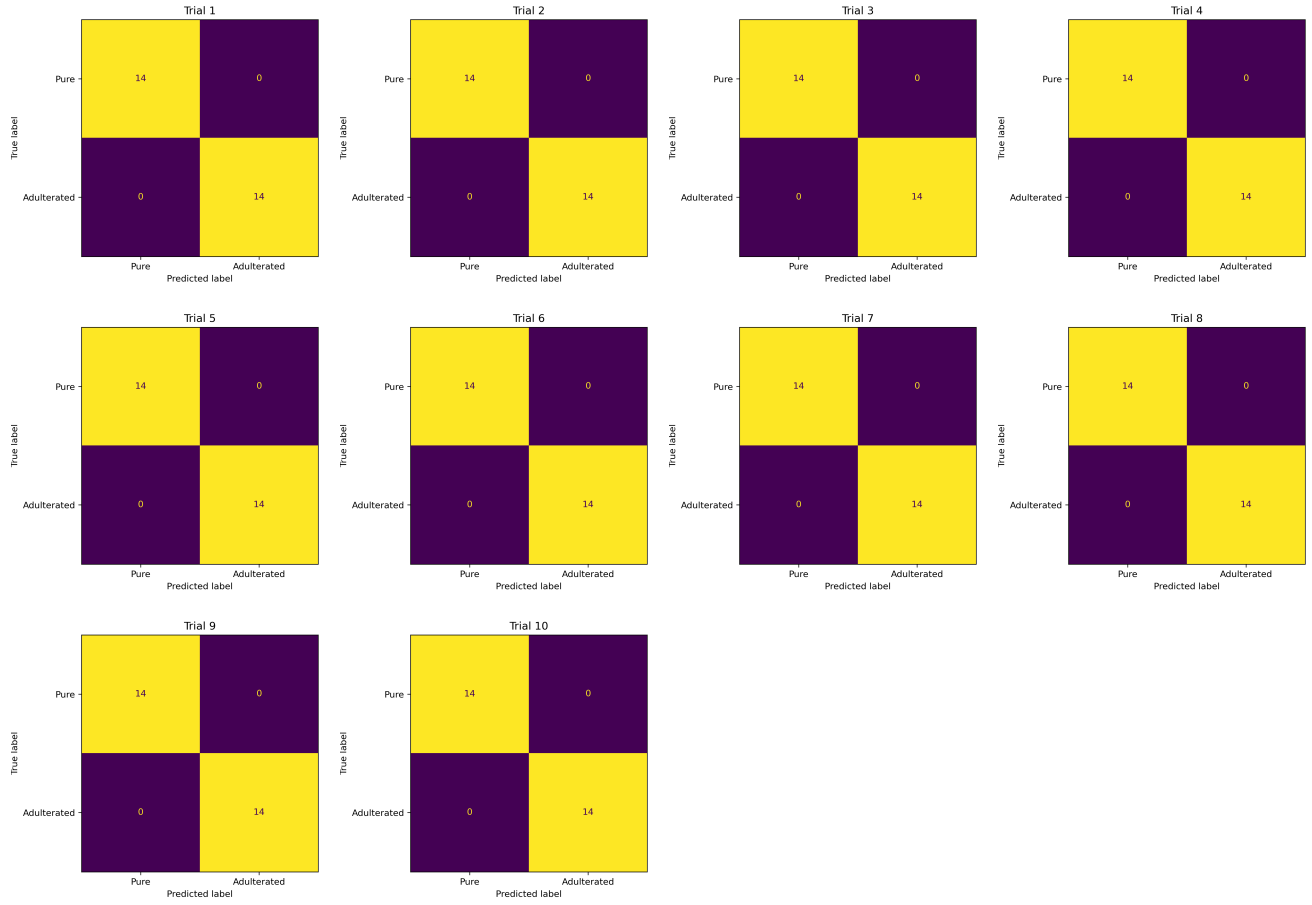


Figure 1: Confusion matrices for the CNN-KAN architecture on the training set.

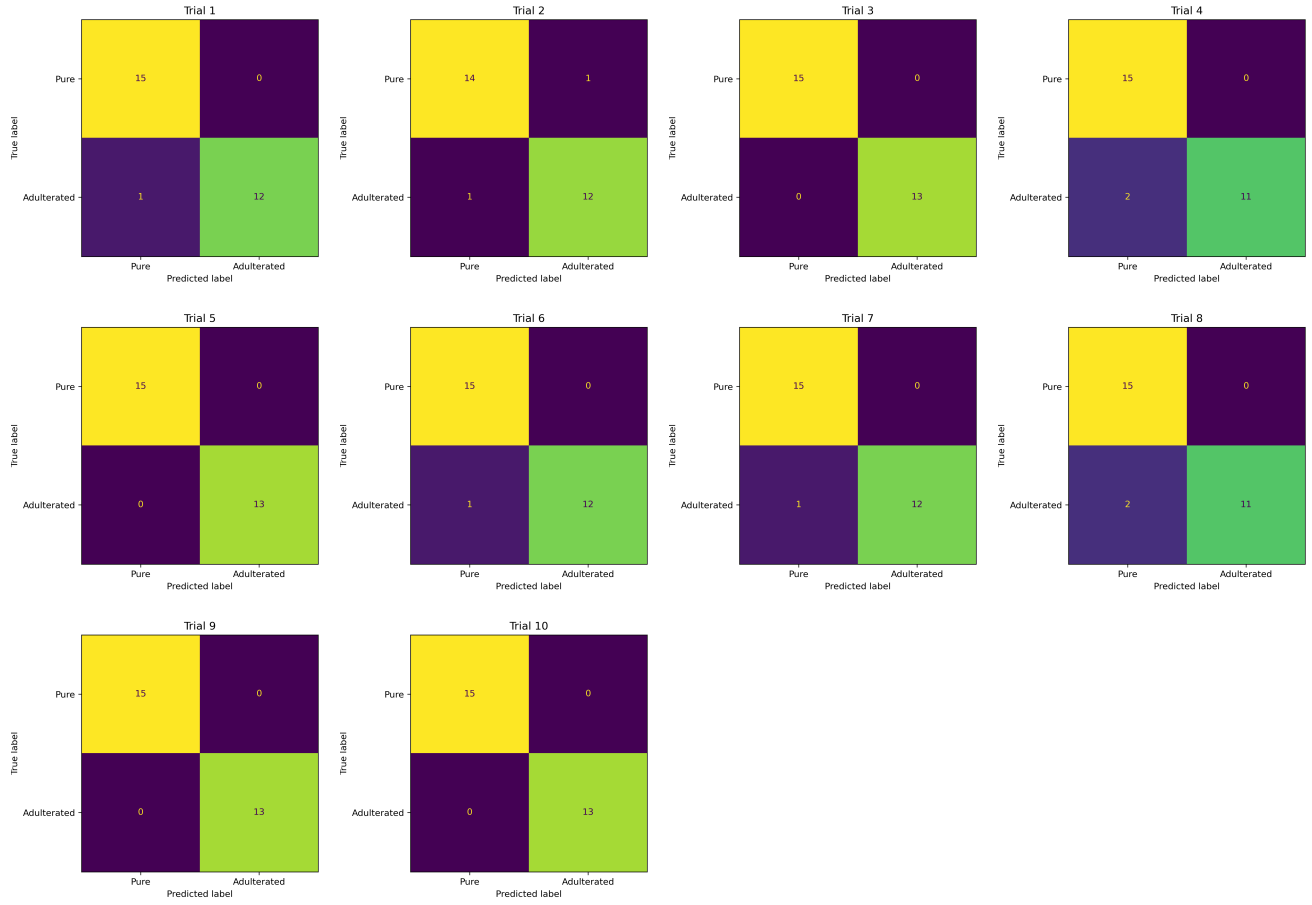


Figure 2: Confusion matrices for the CNN-KAN architecture on the test set.

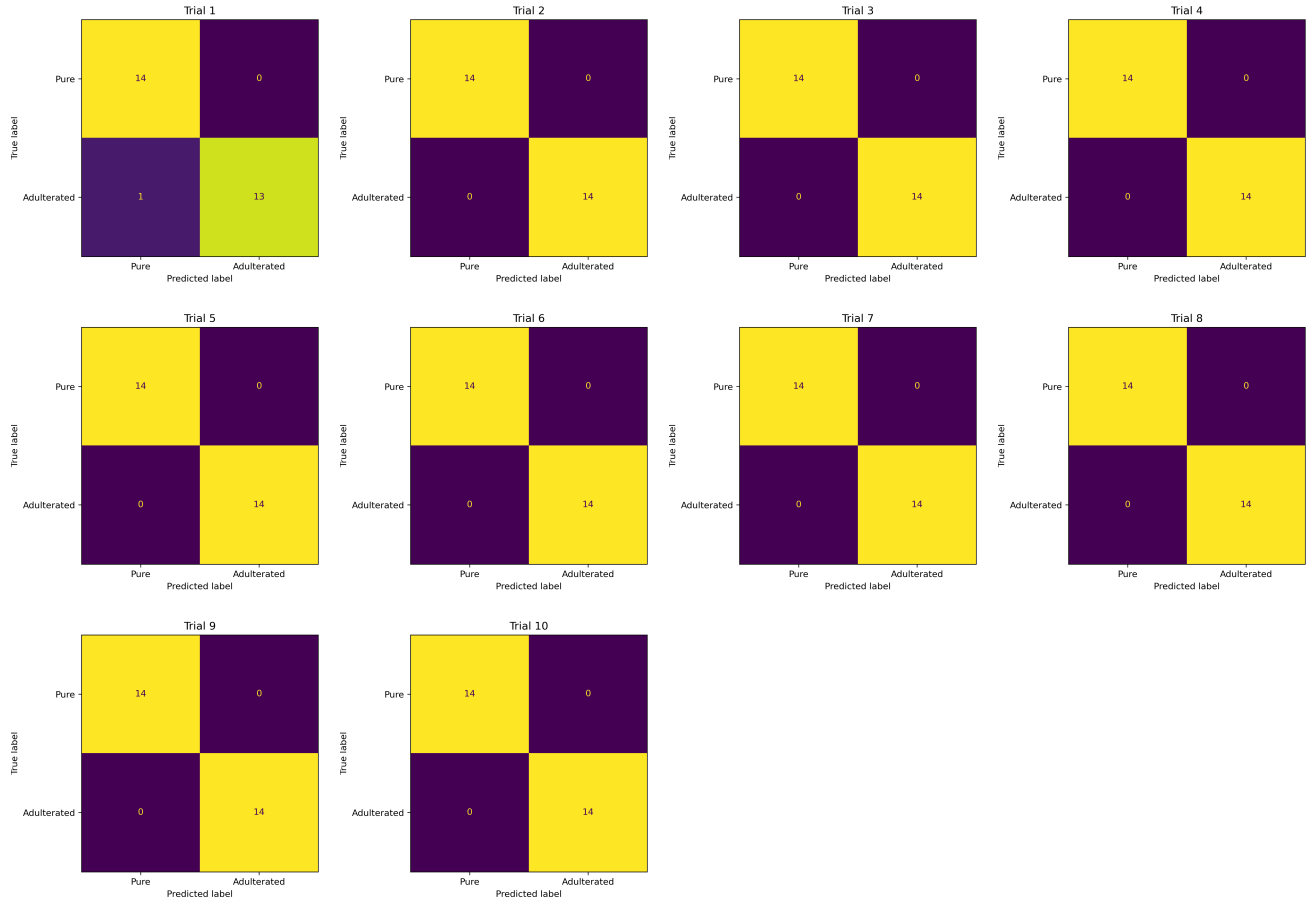


Figure 3: Confusion matrices for the simple CNN architecture on the training set.

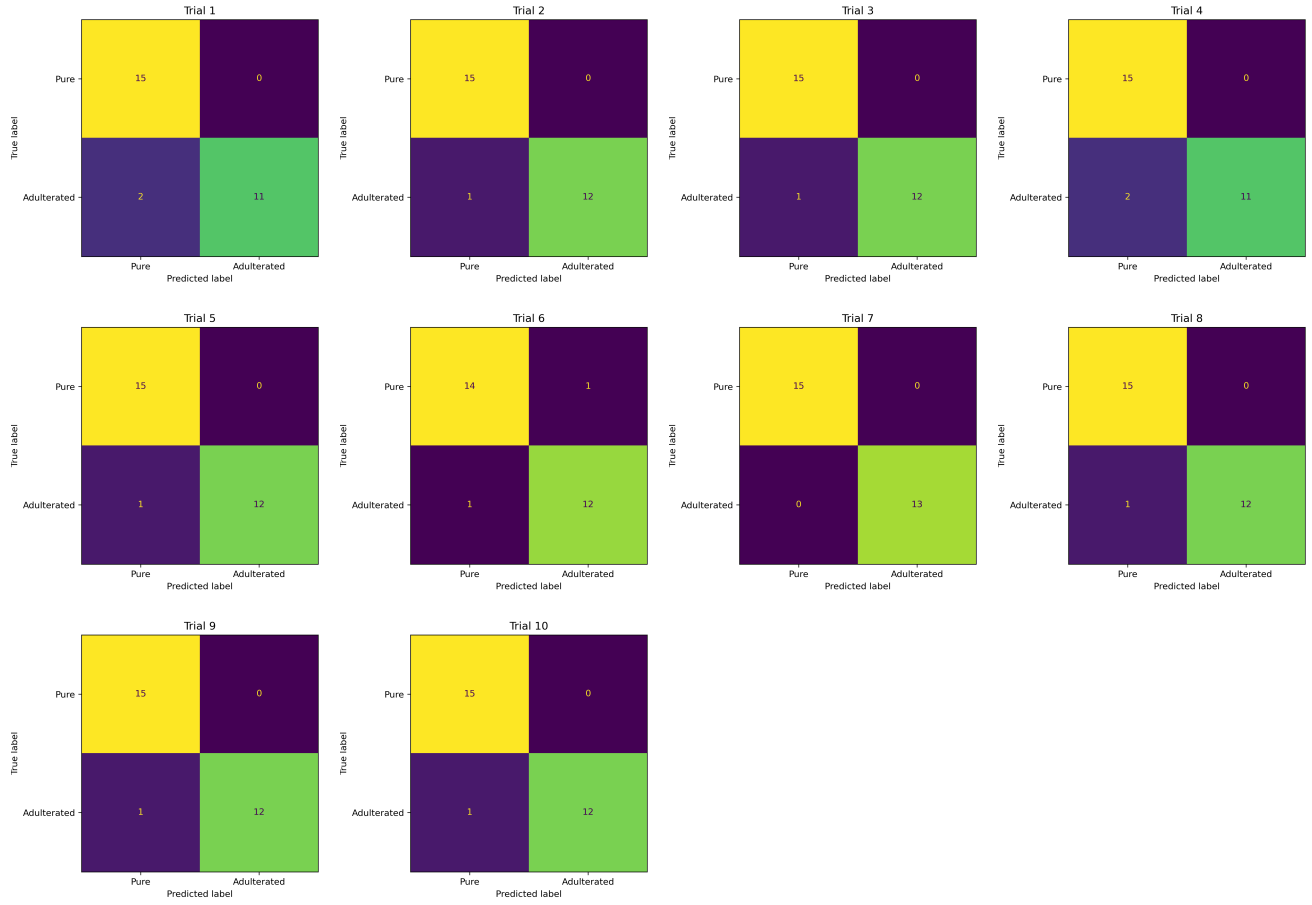


Figure 4: Confusion matrices for the simple CNN architecture on the test set.