

Nueva versión

Aplicación Desktop

Versión menor - V3.0.12

16/08/2024

File Name
 VN_ROB_G1S16_TTDSUPERCL

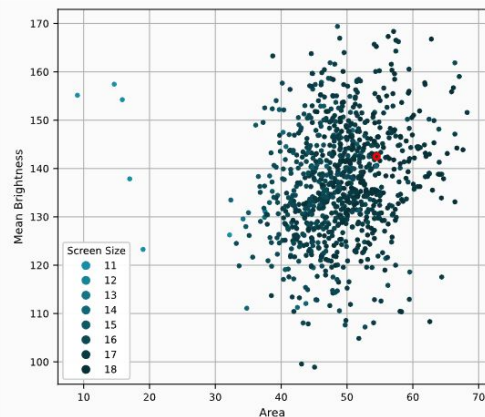
 File Location
 D:\Projects\csmart-digit-validation\ROB files

 Last Analysis Model
 224_MCL_RNXT_CAN_VNM_NATV00_D86

 Francisco Massucci Silveira
 Open Web Server


Class Name

Feature Analysis



Plot Parameters

☒ Scatter☐ Hexbin☐ Log

X Area

Y Mean Brightness

C Screen Size

Generate Plot

Save Image



Show All Images

Seed number 0

Class Probability 99.5%

Screen Size 18

Class OK



AI Model Parameters

 Average Entropy 7.32%
 Inference Confidence High Confidence
 Cohen's Kappa 87.3%

Binary Accuracy

894

Ratio: 97.17%

Binary Error

26

Ratio: 2.83%

Multiclass Accuracy

892

Ratio: 96.96%

Multiclass Error

28

Ratio: 3.04%

Confusion Matrix

Analysis Generated on 2024/06/18 at 15:40:00 by DESKTOP-PVBUDNC | 261 pixels per cm | 5 min area | 70 max area

Dashboard

1. **Cohen's Kappa** mide cuán bien dos sistemas están de acuerdo al clasificar —en este caso, el modelo de IA y el análisis humano (verdadero). Este sistema también considera que algunas concordancias pueden ocurrir por casualidad. Una puntuación cercana a 0 indica un desacuerdo total, mientras que 100% muestra que las predicciones del modelo de IA están perfectamente alineadas con el juicio humano. Esta métrica se vuelve relevante después de que el usuario haya ajustado la clasificación de las imágenes en el mosaico de imágenes.

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Quality Control

- Home
- Artificial Intelligence
- Dashboard**
- Image Mosaic
- Lot Info
- Classification Report
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- Export Images
- Compare

Cloud Services

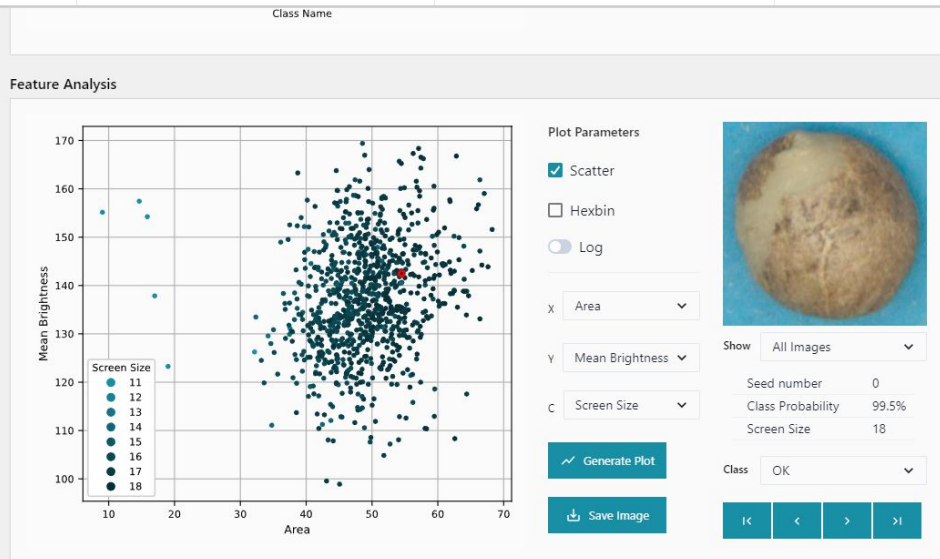
- Upload Analysis

AI Model

- Model Evaluation

App Configuration

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AI Model Parameters

1.

Average Entropy	7.32%
Inference Confidence	High Confidence
Cohen's Kappa	87.3%

2.

Binary Accuracy
894
Ratio: 97.17%

3.

Binary Error
26
Ratio: 2.83%

Multiclass Accuracy
892
Ratio: 96.96%

Multiclass Error
28
Ratio: 3.04%

4.

Confusion Matrix

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Dashboard

2. **Binary Accuracy y Binary Error** se utilizan para evaluar el desempeño de un modelo de IA al diferenciar entre café bueno y café defectuoso. La Acuracidad Binaria calcula el porcentaje de predicciones correctas para las clases defectuosas en relación con todas las predicciones, mientras que el Error Binario representa el porcentaje de predicciones incorrectas. Estas métricas son cruciales para entender qué tan bien el modelo distingue entre cafés buenos y defectuosos, desconsiderando errores dentro de estos subconjuntos.

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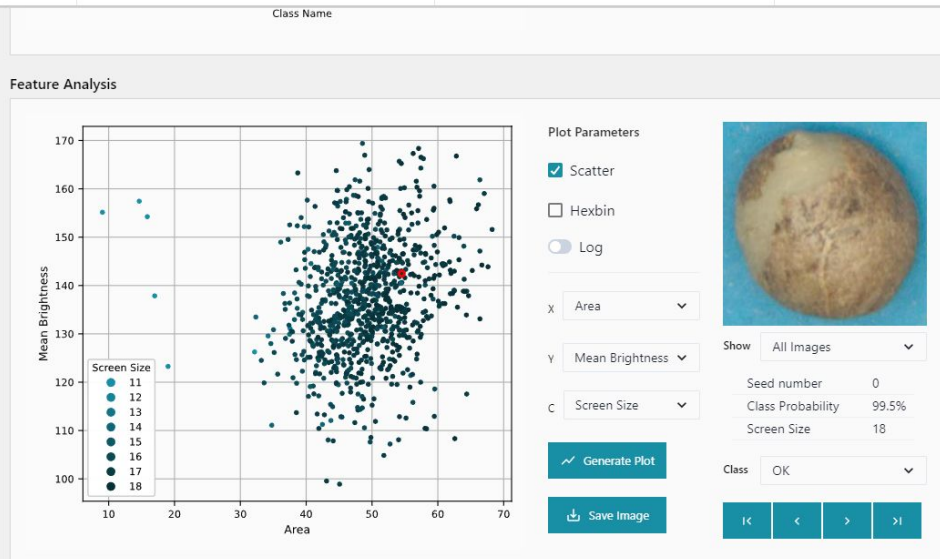
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AI Model Parameters

1.

Average Entropy	7.32%
Inference Confidence	High Confidence
Cohen's Kappa	87.3%

2.

Binary Accuracy
894
Ratio: 97.17%

3.

Binary Error
26
Ratio: 2.83%

Multiclass Accuracy
892
Ratio: 96.96%

Multiclass Error
28
Ratio: 3.04%

4.

Confusion Matrix

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3. **Multiclass Accuracy y Error** están destinados a evaluar el desempeño de un modelo de IA al diferenciar entre todas las clases presentes en el modelo. La **Acuracidad Multiclase** calcula el porcentaje de predicciones correctas para cada clase en relación con todas las predicciones, mientras que el **Multiclass Error** representa el porcentaje de predicciones incorrectas entre esas clases. Estas métricas son esenciales para entender qué tan bien el modelo distingue entre varias clases y para evaluar el error general del modelo.

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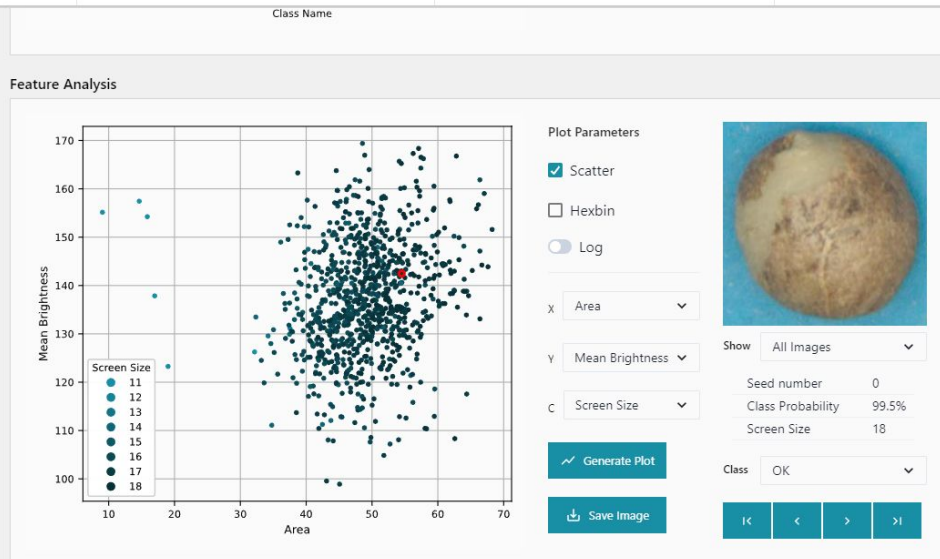
- Upload Analysis

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AI Model Parameters

Average Entropy 7.32%

Inference Confidence **High Confidence**

Cohen's Kappa 87.3%

Binary Accuracy
894
Ratio: 97.17%

Binary Error
26
Ratio: 2.83%

Multiclass Accuracy
892
Ratio: 96.96%

Multiclass Error
28
Ratio: 3.04%

Confusion Matrix

Analysis Generated on 2024/06/18 at 15:40:00 by DESKTOP-PVBUDNC | 261 pixels per cm | 5 min area | 70 max area

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4. Haga clic en el botón **Confusion Matrix** para abrir esta métrica, que es una tabla utilizada para definir el desempeño de un algoritmo de clasificación. Una matriz de confusión visualiza y resume el desempeño de un algoritmo de clasificación, presentando el rótulo previsto en el eje X y el rótulo verdadero (imágenes que fueron ajustadas por el usuario) en el eje Y. Esta métrica es relevante sólo si el usuario ha alterado las clases de las imágenes en el Image Mosaic.

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 VN_ROB_G1S16_TTDSUPERCL

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 Inference Confidence **High Confidence**
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 Binary Accuracy
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 Ratio: 97.17%

 Binary Error
26
 Ratio: 2.83%

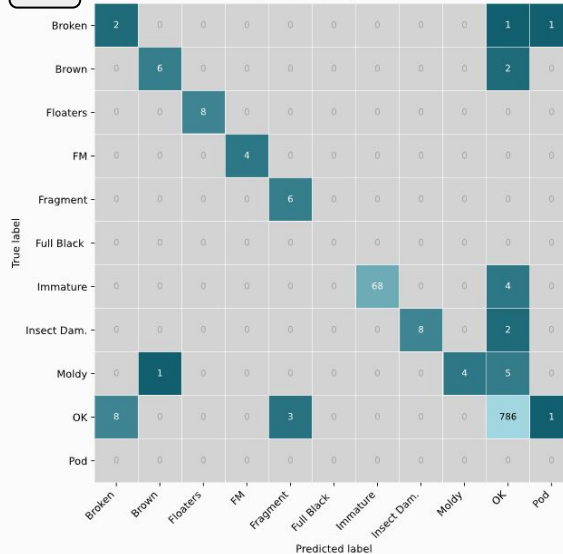
 Multiclass Accuracy
892
 Ratio: 96.96%

 Multiclass Error
28
 Ratio: 3.04%

Confusion Matrix ^

5.

Model 224_MCL_RNXT_CAN_VNM_NATV00_D86



Class	Precision	Recall	F1-Score
Floaters	1.00	1.00	1.00
FM	1.00	1.00	1.00
OK	0.98	0.98	0.98
Immature	1.00	0.94	0.97
Insect Dam.	1.00	0.80	0.89
Brown	0.86	0.75	0.80
Fragment	0.67	1.00	0.80
Moldy	1.00	0.40	0.57
Broken	0.20	0.50	0.29
Full Black	0.00	0.00	0.00
Pod	0.00	0.00	0.00

Precision: For a given class, precision is the ratio of correctly predicted instances of that class to the total number of instances predicted as that class. It answers the question, "Of all the times the model predicted a class, how often was it correct?"

Recall: For a given class, recall is the ratio of correctly predicted instances of that class to the actual number of instances of that class in the analysis. It addresses the question, "Of all the actual instances of a class, how many did the model correctly predict?"

F1 Score: This is the harmonic mean of precision and recall. It is especially useful when the class distribution is uneven. An F1 score reaches its best value at 1 (perfect precision and recall) and its worst at 0.

6.

Save Image

7.

Dashboard

5. Los resultados en la diagonal representan predicciones correctas, ya que **Predict Label** es igual a **True Label**. Cualquier otra ocurrencia representa dónde y cómo el modelo se equivocó durante la predicción.

6. Se presenta una tabla con el nombre de las **clases, Precisión, Recall y F1-Score** para cada clase. La definición de estas métricas se presenta en el texto debajo de la tabla.

7. El botón **Save Image** guarda la matriz de confusión en formato jpg.

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Model Evaluation

1. Add analysis files to the assessment list

+ Add Analysis

9.

No files selected

Clear List

2. Click 'Evaluate Model' after selecting the appropriate analysis files

Evaluate Model

8.

Dashboard

8. Una nueva sección en el menú lateral llamada **AI Model** tiene como objetivo evaluar el desempeño de un modelo de IA después de la adecuación de las clases de diferentes análisis, usando la herramienta Image Mosaic. Para acceder a este recurso, haga clic en Model Evaluation.

9. Haga clic en **+Add Analysis** y seleccione los archivos que fueron ajustados para la clasificación de imágenes.

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AI Model

Model Evaluation

1. Add analysis files to the assessment list

+ Add Analysis

1	VN_ROB_FAQ_TTD	224_MCL_RNXT_CAN_VNM_NATV00_D86	
2	VN_ROB_FAQ_TTD_test	224_MCL_RNXT_CAN_VNM_NATV01_G85	
3	VN_ROB_G1S16_TTDSUPERCL	224_MCL_RNXT_CAN_VNM_NATV00_D86	
4	VN_ROB_S16_28B	224_MCL_RNXT_CAN_VNM_NATV00_D86	
5	VN_ROB_S16_28B_test	224_MCL_RNXT_CAN_VNM_NATV01_G85	
6	VN_ROB02585_3	224_MCL_RNXT_CAN_VNM_NATV00_D86	
7	VN_ROBDAKLAD_CALIB2	224_MCL_RNXT_CAN_VNM_NATV00_D86	
8	VN_ROBDAKLAK_1	224_MCL_RNXT_CAN_VNM_NATV00_D86	
9	VN_ROBDAKLAK_2	224_MCL_RNXT_CAN_VNM_NATV00_D86	
10	VN_ROBDAKLAK_3	224_MCL_RNXT_CAN_VNM_NATV00_D86	
11	VN_ROBDAKLAK_CALIB3	224_MCL_RNXT_CAN_VNM_NATV00_D86	

Clear List

2. Click 'Evaluate Model' after selecting the appropriate analysis files

Evaluate Model

Dashboard

10. Asegúrese de que solo los archivos que fueron analizados con el mismo modelo de IA sean seleccionados en la lista. Elimine aquellos que hayan sido clasificados con otro modelo.

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AI Model

Model Evaluation

1. Add analysis files to the assessment list

+ Add Analysis

1	VN_ROB_FAQ_TTD	224_MCL_RNXT_CAN_VNM_NATV00_D86	
2	VN_ROB_G1S16_TTDSUPERCL	224_MCL_RNXT_CAN_VNM_NATV00_D86	
3	VN_ROB_S16_2B8	224_MCL_RNXT_CAN_VNM_NATV00_D86	
4	VN_ROB02585_3	224_MCL_RNXT_CAN_VNM_NATV00_D86	
5	VN_ROBDAKLAD_CALIB2	224_MCL_RNXT_CAN_VNM_NATV00_D86	
6	VN_ROBDAKLAK_1	224_MCL_RNXT_CAN_VNM_NATV00_D86	
7	VN_ROBDAKLAK_2	224_MCL_RNXT_CAN_VNM_NATV00_D86	
8	VN_ROBDAKLAK_3	224_MCL_RNXT_CAN_VNM_NATV00_D86	
9	VN_ROBDAKLAK_CALIB3	224_MCL_RNXT_CAN_VNM_NATV00_D86	
10	VN_ROBFAQ_02585_2	224_MCL_RNXT_CAN_VNM_NATV00_D86	
11	VN_ROBFAQ_TTD02585_1	224_MCL_RNXT_CAN_VNM_NATV00_D86	

Clear List

2. Click 'Evaluate Model' after selecting the appropriate analysis files

Evaluate Model

11.

Dashboard

11. Haga clic en **Evaluate Model** para generar la evaluación.


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Quality Control



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Image Mosaic



Lot Info



Classification Report



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AI Model

Model Evaluation

Selected Analysis: 37

 Average Entropy 8.2%
 Inference Confidence **High Confidence**
 Cohen's Kappa 77.9%

 Binary Accuracy
44204
 Ratio: 92.05%

 Binary Error
3819
 Ratio: 7.95%

 Multiclass Accuracy
42714
 Ratio: 88.94%

 Multiclass Error
5309
 Ratio: 11.06%

Confusion Matrix ^

Model 224_MCL_RNXT_CAN_VNM_NATV00_D86

True label \ Predicted label	Broken	Brown	Floater	FM	Fragment	Full Black	Immature	Insect Dam.	Moldy	OK	Pod
Broken	762	0	0	0	33	0	3	1	1	25	1
Brown	41	1499	0	9	51	18	809	17	89	108	8
Floater	4	0	760	0	18	0	6	0	2	56	0
FM	0	0	0	1390	4	1	3	0	0	0	6
Fragment	6	0	0	15	2315	0	2	1	0	3	0
Full Black	1	15	0	4	10	132	36	2	20	3	4
Immature	8	1	0	4	17	1	3554	2	9	111	0
Insect Dam.	5	0	0	0	15	3	101	355	8	86	0
Moldy	5	8	0	4	4	2	22	14	406	34	0
OK	166	9	1	16	201	23	2900	30	41	31478	6
Pod	0	0	0	14	2	0	0	0	0	0	63

Class	Precision	Recall	F1-Score
FM	0.95	0.99	0.97
Floater	1.00	0.90	0.95
OK	0.99	0.90	0.94
Fragment	0.87	0.99	0.92
Broken	0.76	0.92	0.84
Moldy	0.70	0.81	0.76
Pod	0.72	0.80	0.75
Brown	0.98	0.57	0.72
Insect Dam.	0.84	0.62	0.71
Full Black	0.73	0.58	0.65
Immature	0.48	0.96	0.64

Precision: For a given class, precision is the ratio of correctly predicted instances of that class to the total number of instances predicted as that class. It answers the question, "Of all the times the model predicted a class, how often was it correct?"

Recall: For a given class, recall is the ratio of correctly predicted instances of that class to the actual number of instances of that class in the analysis. It addresses the question, "Of all the actual instances of a class, how many did the model correctly predict?"

F1 Score: This is the harmonic mean of precision and recall. It is especially useful when the class distribution is uneven. An F1 score reaches its best value at 1 (perfect precision and recall) and its worst at 0.

12.

Dashboard

12. Similar a los recursos presentes en el dashboard para un solo archivo, esta herramienta concatena la lectura de múltiples archivos, presentando una evaluación completa del modelo seleccionado, además de su acuracidad y capacidad de generalizar para nuevos datos. Es importante notar que la tabla presenta, de arriba hacia abajo, las predicciones de clase más precisas, indicando así las clases en la parte inferior que necesitan más imágenes para mejorar el desempeño del modelo.



CSMART COFFEE TECHNOLOGIES SA

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