



Nueva versión
**Aplicación
Desktop**

Versión menor - V3.0.12
16/08/2024

Dashboard

C Csmart Digit | Csmart Coffee Technologies S.A.

CSMART DIGIT

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File Name: VN_ROB_G1S16_TTDSUPERCL

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

Last Analisis Model: 224_MCL_RNXT_CAN_VNM_NATV00_D86

Francisco Massucci Silveira
Open Web Server

Feature Analysis

Scatter Plot showing Mean Brightness vs Area. A legend indicates Screen Size from 11 to 18. A red dot highlights a specific data point.

Plot Parameters:

- Scatter (checked)
- Hexbin
- Log

Image preview of a coffee bean.

Plot Controls:

- x: Area
- y: Mean Brightness
- c: Screen Size

Statistics:

- Show: All Images
- Seed number: 0
- Class Probability: 99.5%
- Screen Size: 18

Buttons: Generate Plot, Save Image, Navigation arrows.

AI Model Parameters

1. Model Evaluation Metrics:

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

2. Binary Metrics:

| | |
|----------------------|------------------|
| Binary Accuracy: 894 | Binary Error: 26 |
| Ratio: 97.17% | Ratio: 2.83% |

3. Multiclass Metrics:

| | |
|--------------------------|----------------------|
| Multiclass Accuracy: 892 | Multiclass Error: 28 |
| Ratio: 96.96% | Ratio: 3.04% |

4. 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

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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Feature Analysis

Plot Parameters

Scatter

Hexbin

Log

x: Area

y: Mean Brightness

c: Screen Size

Show: All Images

Seed number: 0

Class Probability: 99.5%

Screen Size: 18

Generate Plot

Save Image

AI Model Parameters

| | | | |
|----------------------|--|-----------------------------|---------------------------|
| Avarage Entropy | 7.32% | Binary Accuracy | Binary Error |
| Inference Confidence | High Confidence | 894 Ratio: 97.17% | 26 Ratio: 2.83% |
| Cohen's Kappa | 87.3% | Multiclass Accuracy | Multiclass Error |
| | | 892 Ratio: 96.96% | 28 Ratio: 3.04% |

1.

2.

3.

4.

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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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 Acuracía 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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Feature Analysis

Scatter Plot showing Mean Brightness vs Area. A legend indicates Screen Size categories from 11 to 18. A red dot highlights a specific data point.

Plot Parameters:

- Scatter (checked)
- Hexbin
- Log

Image preview: A close-up photograph of a coffee bean.

Plot Controls:

- X: Area
- Y: Mean Brightness
- C: Screen Size

Statistics:

- Show: All Images
- Seed number: 0
- Class Probability: 99.5%
- Screen Size: 18

Buttons: Generate Plot, Save Image, Navigation arrows.

AI Model Parameters

1. Model Evaluation Metrics:

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

2. Binary Accuracy: 894 (Ratio: 97.17%)

3. Multiclass Accuracy: 892 (Ratio: 96.96%)

4. Binary Error: 26 (Ratio: 2.83%)

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

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 Acuracía Multiclasa 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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Feature Analysis

Scatter Plot showing Mean Brightness vs Area. A legend indicates Screen Size from 11 to 18. A red dot highlights a specific data point.

Plot Parameters:

- Scatter
- Hexbin
- Log

X: Area, Y: Mean Brightness, C: Screen Size. Show: All Images. Seed number: 0, Class Probability: 99.5%, Screen Size: 18. Class: OK.

AI Model Parameters

1. Avarage Entropy: 7.32%
Inference Confidence: High Confidence
Cohen's Kappa: 87.3%

2. Binary Accuracy: 894 (Ratio: 97.17%)
Binary Error: 26 (Ratio: 2.83%)

3. Multiclass Accuracy: 892 (Ratio: 96.96%)
Multiclass Error: 28 (Ratio: 3.04%)

4. 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

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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AI Model Parameters

| | | | | | |
|----------------------|-----------------|-----------------|-----------------------------|---------------------|-----------------------------|
| Average Entropy | 7.32% | Binary Accuracy | 894 Ratio: 97.17% | Multiclass Accuracy | 892 Ratio: 96.96% |
| Inference Confidence | High Confidence | Binary Error | 26 Ratio: 2.83% | Multiclass Error | 28 Ratio: 3.04% |
| Cohen's Kappa | 87.3% | | | | |

Confusion Matrix

5.

Model 224_MCL_RNXT_CAN_VNM_NATV00_D86

6.

| | | Predicted label | | | | | | | | | | |
|-------------|---|-----------------|-------|----------|----|----------|------------|----------|-------------|-------|----|-----|
| True label | | Broken | Brown | Floaters | FM | Fragment | Full Black | Immature | Insect Dam. | Moldy | Ok | Pod |
| | | Broken | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Brown | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | | |
| Floaters | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| FM | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Fragment | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | | |
| Full Black | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Immature | 0 | 0 | 0 | 0 | 0 | 0 | 68 | 0 | 0 | 4 | 0 | |
| Insect Dam. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 2 | 0 | |
| Moldy | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 0 | |
| Ok | 8 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 786 | 1 | |
| Pod | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

Save Image

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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.

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.

7.

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



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VN_ROB_G1S16_TTDSUPERCL

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

Last Analisys Model
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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.

8.

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

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

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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_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_2BB | 224_MCL_RNXT_CAN_VNM_NATV00_D86 | |
| 5 VN_ROB_S16_2BB_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 | |

10.

Clear List

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

Evaluate Model

File Name
VN_ROB_G1S16_TTDSUPERCLFile Location
D:\Projects\csmart-digit-validation\ROB filesLast Analysis Model
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11. Haga clic en **Evaluate Model** para generar la evaluación.

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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_2BB | 224_MCL_RNXT_CAN_VNM_NATV00_D86 | |
| 4 VN_ROB02585_3 | 224_MCL_RNXT_CAN_VNM_NATV00_D86 | |
| 5 VN_ROBDAKLAK_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.

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Model Evaluation

Selected Analysis: 37

| | | | | | |
|----------------------|-----------------|-----------------|-------------------------------|---------------------|-------------------------------|
| Avarage Entropy | 8.2% | Binary Accuracy | 44204 Ratio: 92.05% | Multiclass Accuracy | 3819 Ratio: 7.95% |
| Inference Confidence | High Confidence | Binary Error | 3819 Ratio: 7.95% | Multiclass Error | 42714 Ratio: 88.94% |
| Cohen's Kappa | 77.9% | | | | |

Confusion Matrix

Model 224_MCL_RNXT_CAN_VNM_NATV00_D86

| True label | | Predicted Class | | | | | | | | | | Class | Precision | Recall | F1-Score |
|-------------|-----|-----------------|-------|---------|------|----------|------------|----------|-------------|-------|----|-------|-----------|--------|----------|
| | | Broken | Brown | Floater | FM | Fragment | Full Black | Immature | Insect Dam. | Moldy | OK | | | | |
| 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 | | | | |

12.

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.



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