

# AIクラウドサービス「ADFI」 無料体験手順書（2022年8月版）

株式会社AIロボティクス

本手順書では、サンプル画像データセットを使って画像検査AIを作成し、AIの性能検証を行います。

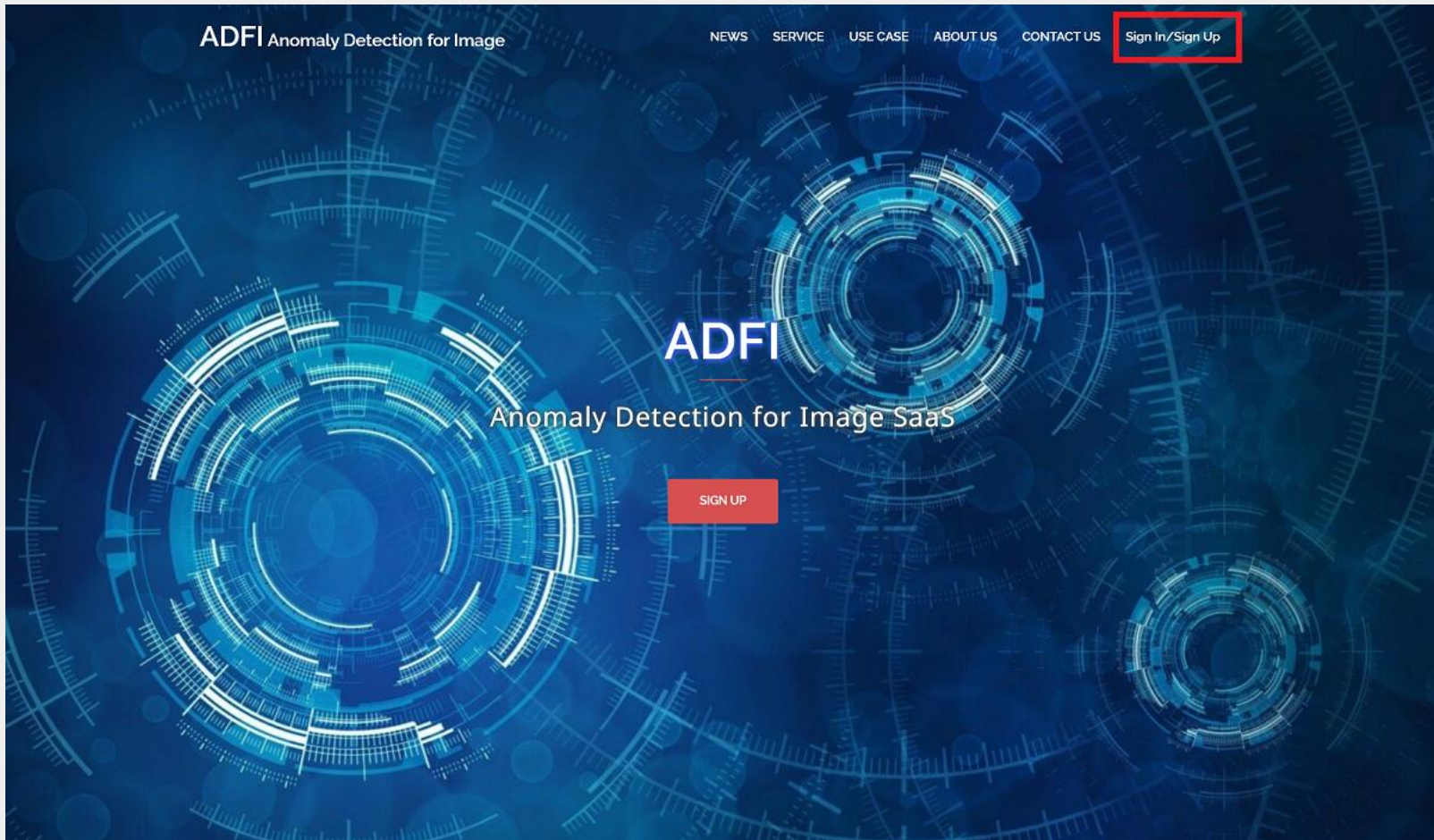
下記の流れで手順を解説します。

1. アカウソトの作成（初回ログイン時のみ）
2. データセットの準備
3. 画像検査AIの作成
4. AIの性能検証
5. 参考情報

# 1. アカウソトの作成 (初回ログイン時のみ)

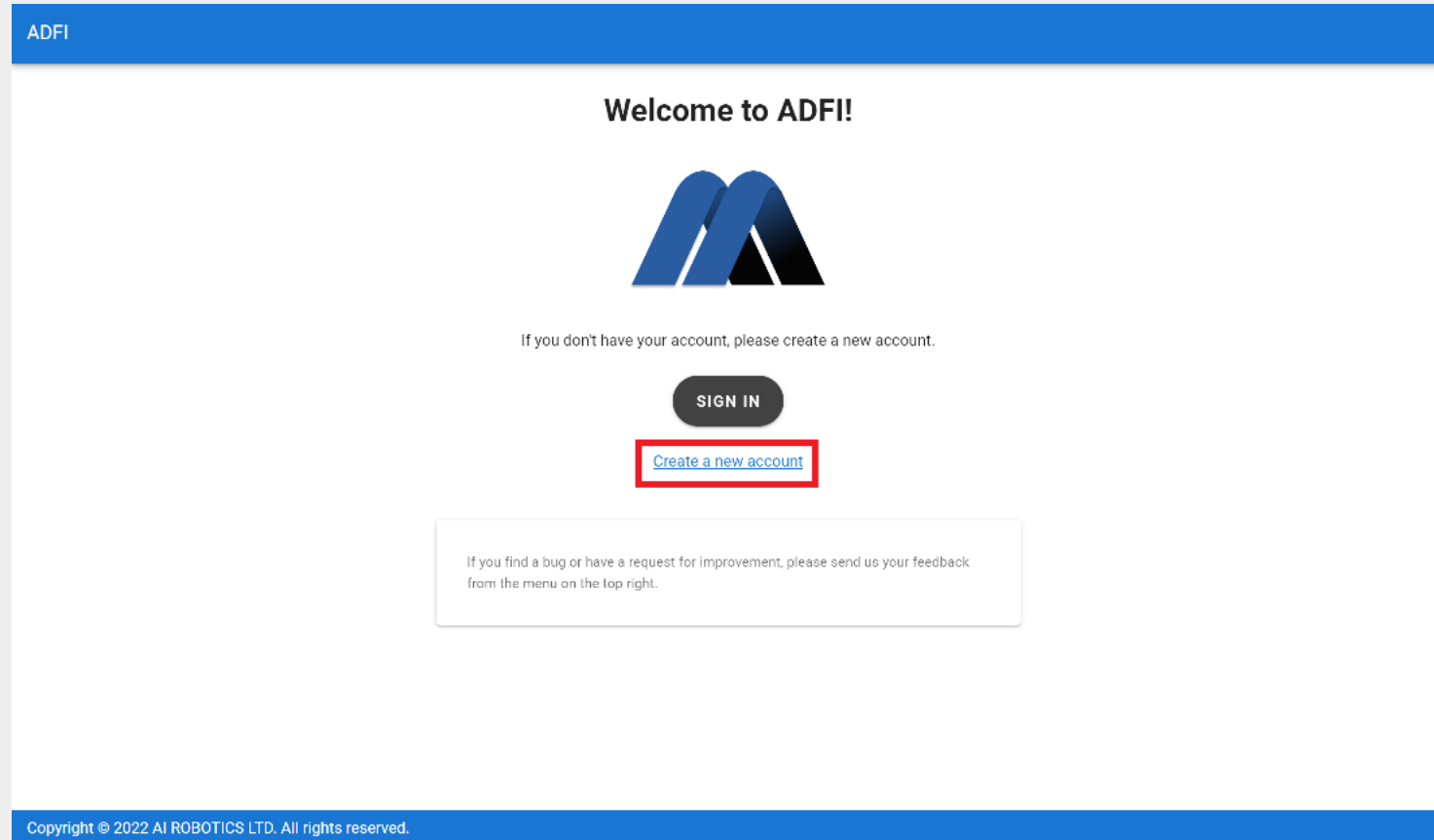
# アカウントの作成（初回ログイン時のみ）

- ADFIの公式サイト（ <https://adfi.jp/ja/> ）にアクセスします。
- 右上の「Sign In/Sign Up」を押してください。ADFIアプリに移動します。



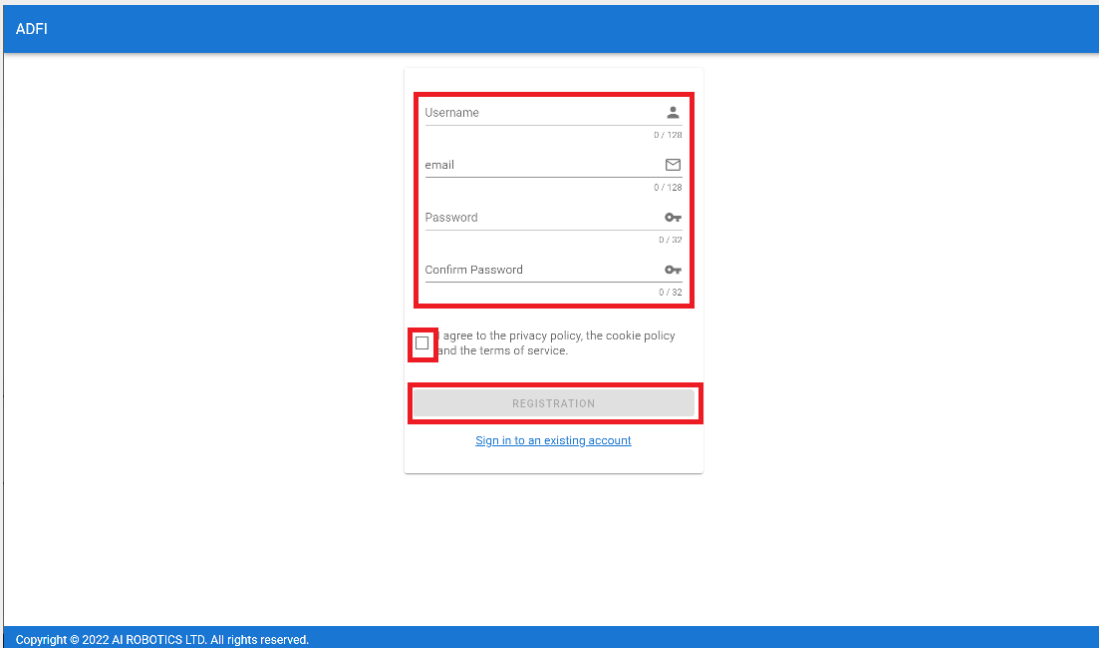
# アカウントの作成（初回ログイン時のみ）

- ADFIアプリ（<https://web.us.adfi.karakurai.com/webapp/>）のトップページです。
- 初回は「Create a new account」を押してください。
  - 2回目以降（アカウント作成後）の場合は、「SIGN IN」ボタンを押してください。

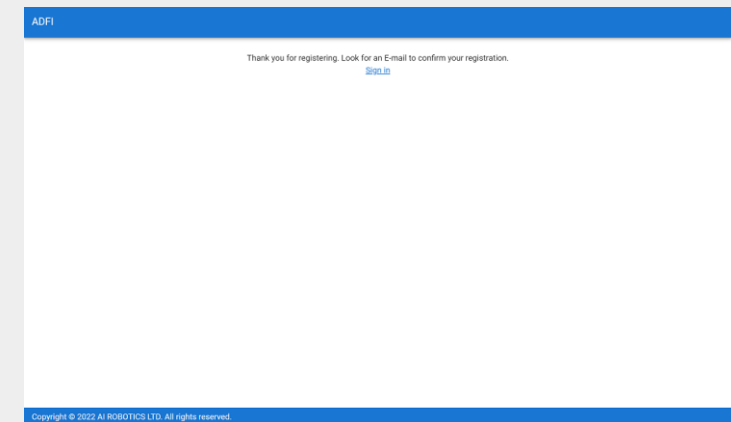


# アカウントの作成（初回ログイン時のみ）

- アカウントを新規作成します。登録するアカウント情報（ユーザー名、メールアドレス、パスワード、パスワードの確認）を入力してください。
- 左下のチェックボックスにチェックを入れた後、「REGISTRATION」ボタンを押してください。入力したメールアドレス宛に確認メールが送信されます。



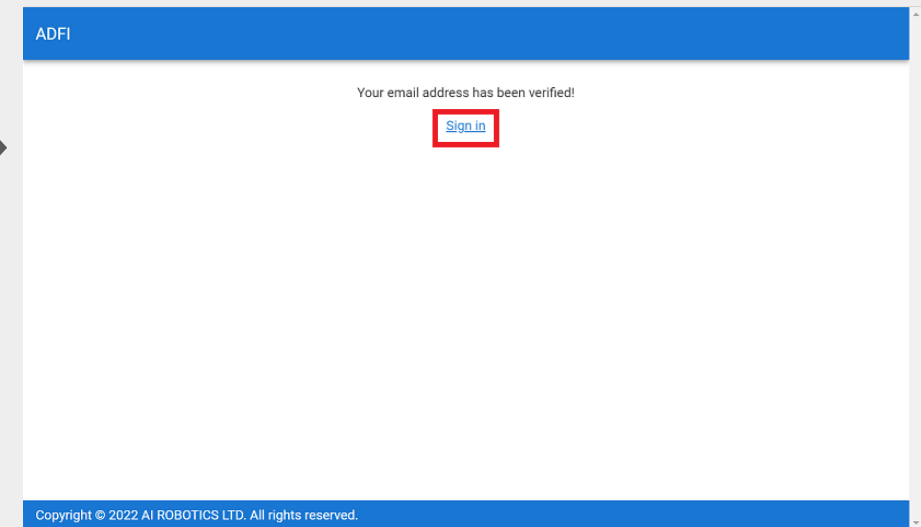
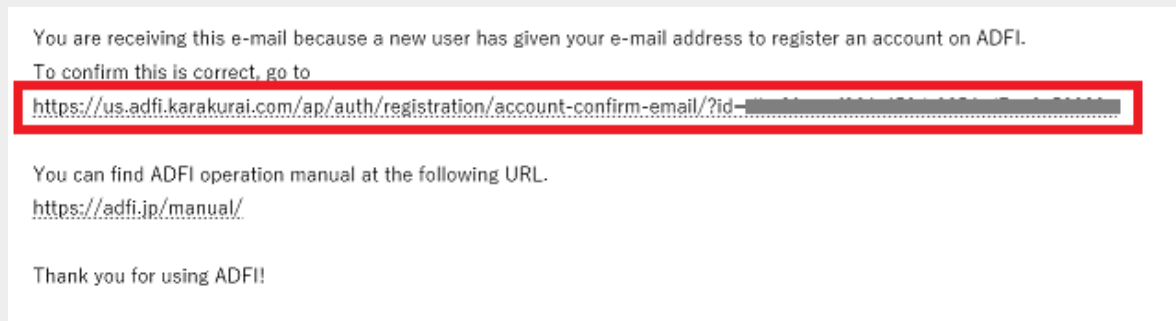
The screenshot shows the registration form on the ADFI website. The form is centered on a white background with a blue header and footer. The form fields are: Username (0 / 128), email (0 / 128), Password (0 / 32), and Confirm Password (0 / 32). Below the password fields is a checkbox labeled 'I agree to the privacy policy, the cookie policy and the terms of service.' At the bottom of the form is a 'REGISTRATION' button and a link 'Sign in to an existing account'.



# アカウントの作成（初回ログイン時のみ）



- ADFI (info-web@airobotics.jp) から「ADFI Please Confirm Your E-mail Address」というタイトルの確認メールが届きますので、メール本文のURLをクリックしてください。
  - URLをクリックすることで、先ほど入力したメールアドレスとパスワードでログインが可能になります。
  - メールが届かない場合は、迷惑メールボックスに振り分けられているか、入力したメールアドレスが誤っていた可能性がありますので、ご確認ください。
- 「Sign in」を押してください。



# アカウントの作成（初回ログイン時のみ）

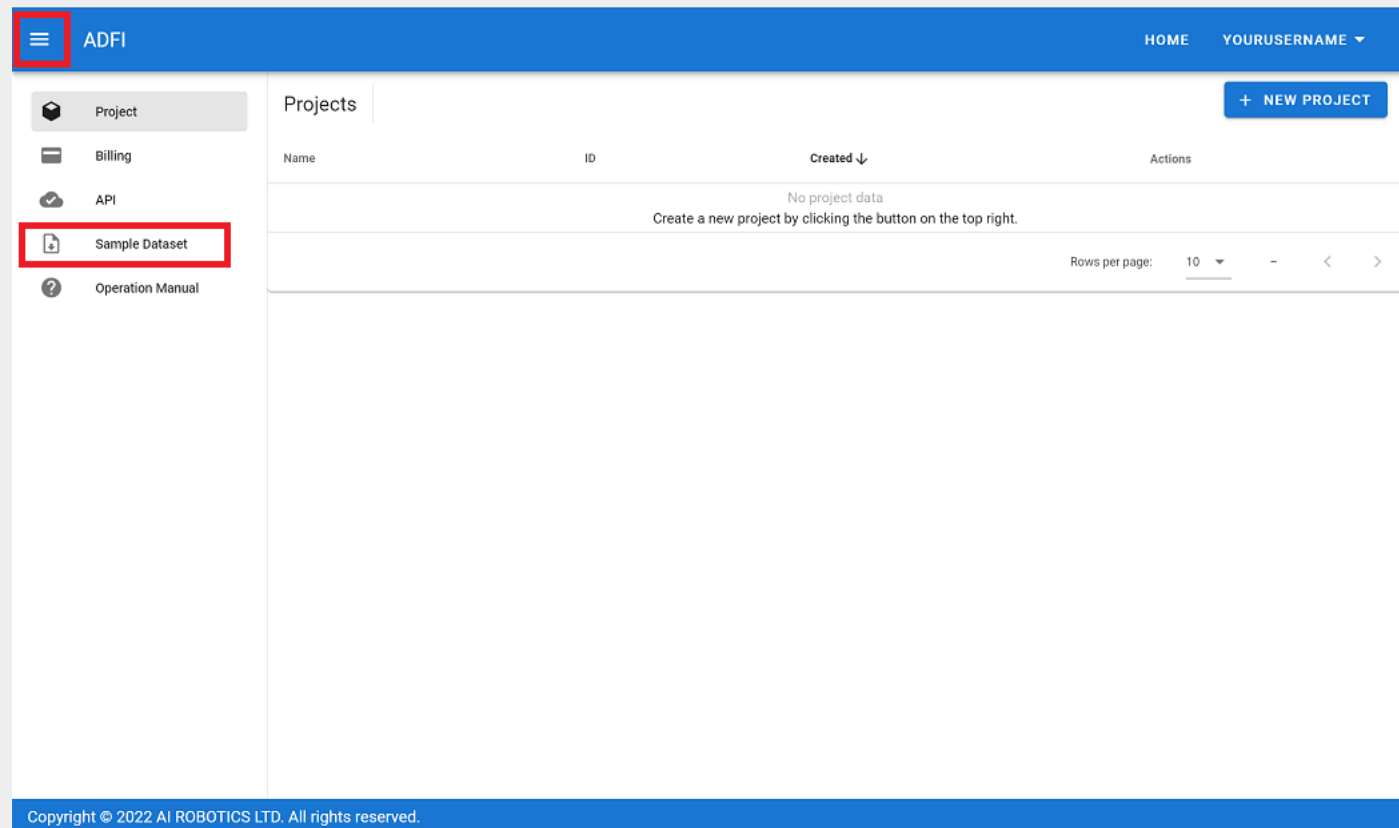


- ADFIアプリにログインします。先ほど登録したアカウントの情報（メールアドレス、パスワード）を入力してください。
- 「SIGN IN」ボタンを押すと、ADFIアプリにログインできます。

A screenshot of the ADFI login interface. At the top is a blue header bar with the text 'ADFI'. The main content area is white and contains a central login form. The form has two input fields: 'email' with an envelope icon and a character count '0 / 128', and 'Password' with a key icon and a character count '0 / 32'. Below these fields is a blue button labeled 'SIGN IN'. Under the button are two links: 'Create a new account' and 'Forgot your password?'. At the bottom of the form is a feedback message: 'If you find a bug or have a request for improvement, please send us your feedback from the menu on the top right.' The footer is a blue bar with the text 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.' Red rectangular boxes highlight the email and password input fields, the 'SIGN IN' button, and the feedback message box.

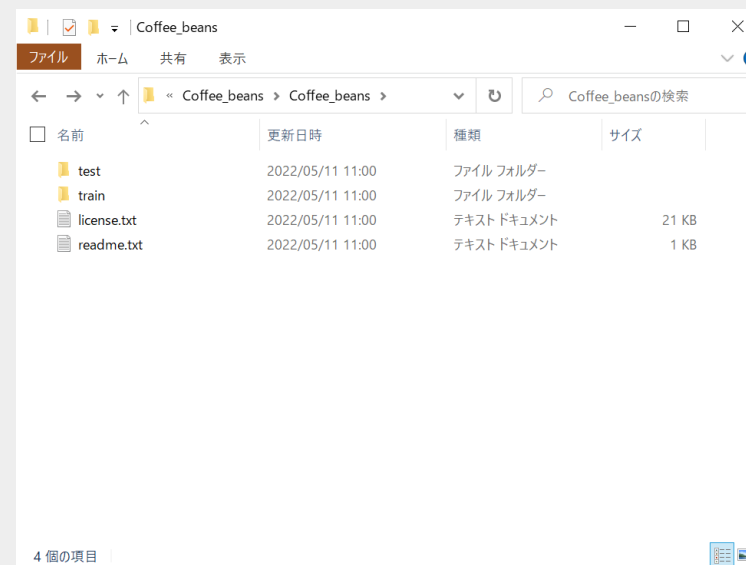
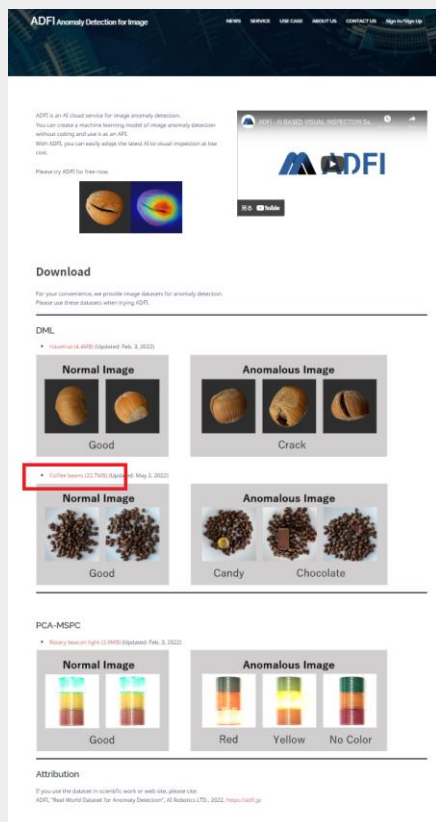
## 2. データセットの準備

- 画像検査AIの作成と性能検証に必要なデータセットを準備します。ADFIアプリにログイン後、左メニューの「Sample Dataset」を押してください。
  - メニューが表示されていない場合、左上の「≡」アイコンを押してください。メニューが表示されます。



# データセットの準備

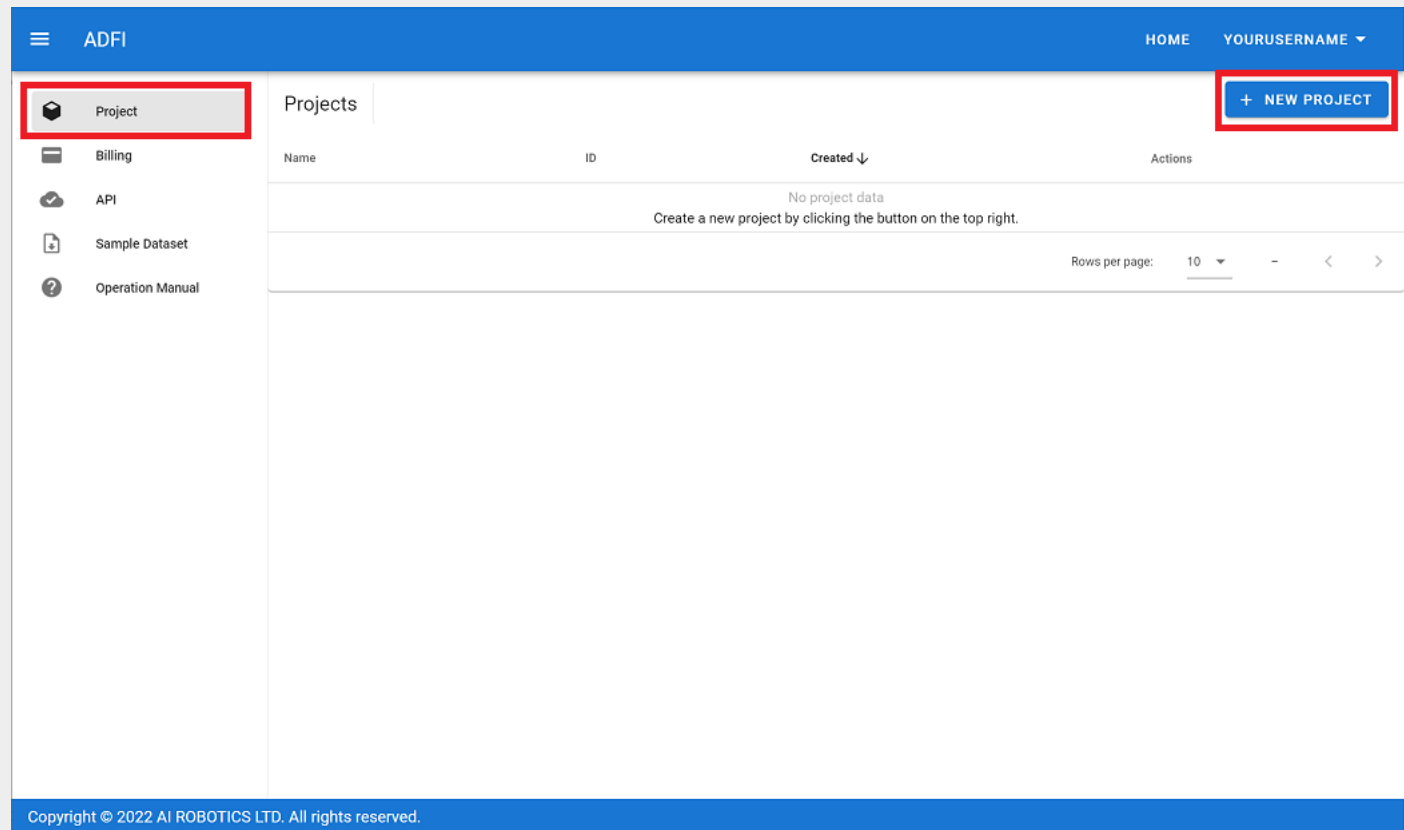
- ADFI公式サイトのダウンロードページが表示されます。ページ中段の「Coffee beans (22.7MB)」を押して、サンプル画像データセット（コーヒー豆の異物混入検査）をダウンロードしてください。
  - コーヒー豆だけが写っている画像が正常画像で、異物（チョコレートやキャンディ）が混入している画像が異常画像です。
- ダウンロードした圧縮ファイル「Coffee\_beans.zip」を展開してください。



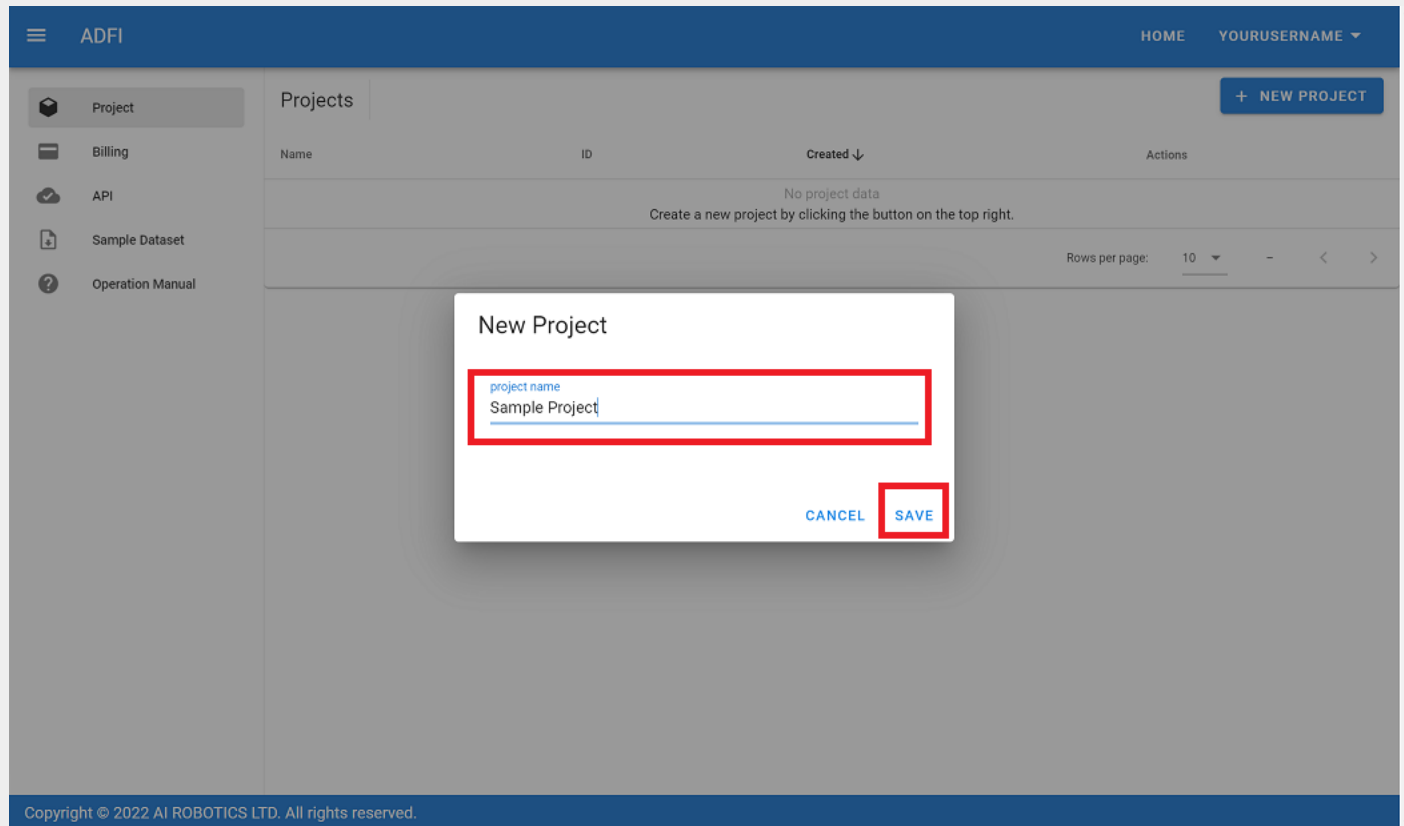
# データセットの準備



- まず、プロジェクトを作成します。ADFIアプリに戻り、左メニューの「Project」を押してください。
- 右上の「NEW PROJECT」ボタンを押してください。

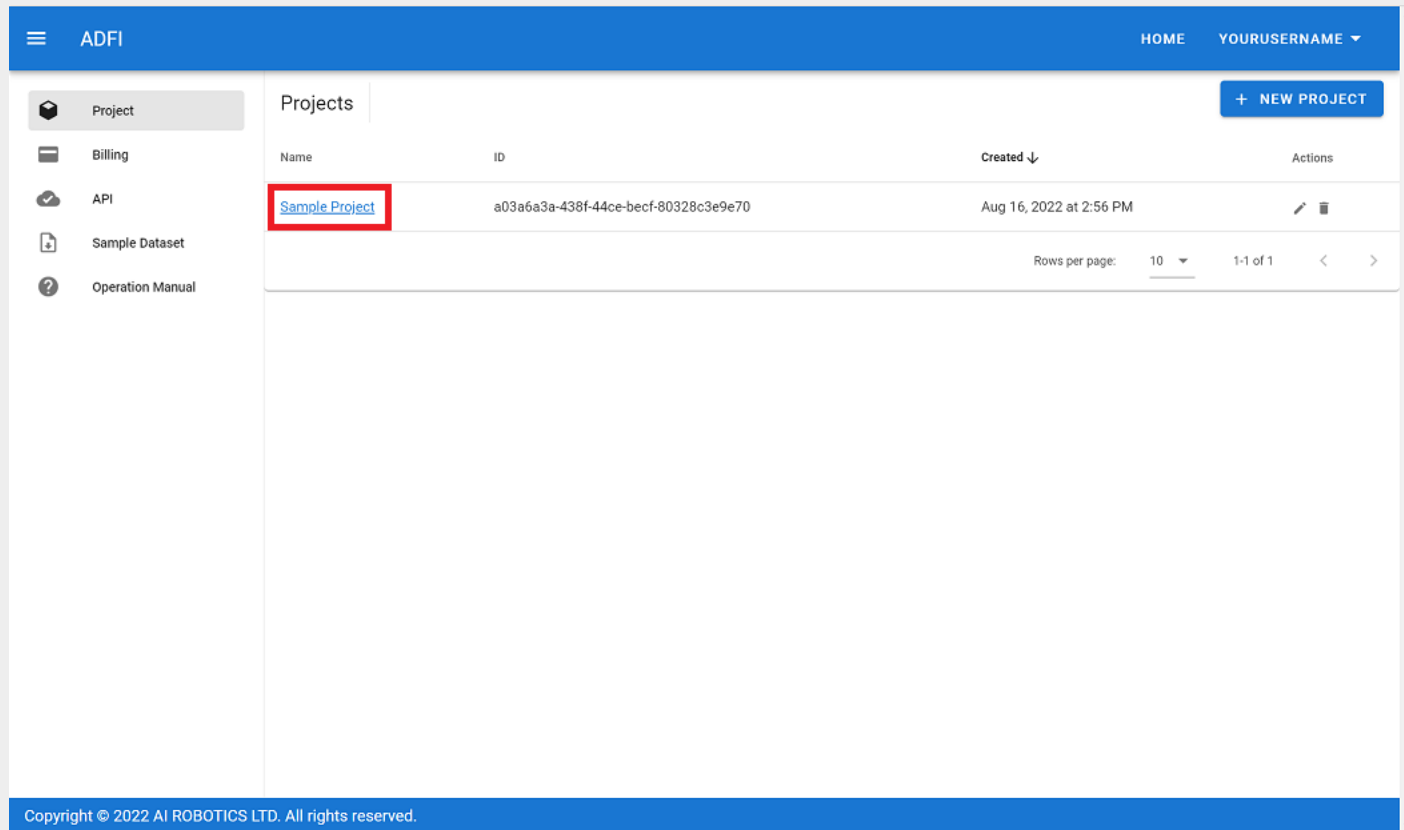


- 作成したいプロジェクト名を入力して「SAVE」を押してください。



The screenshot displays the ADFI web application interface. A modal dialog titled "New Project" is centered on the screen. Inside the dialog, there is a text input field with the placeholder text "project name" and the value "Sample Project". The input field is outlined with a red border. Below the input field, there are two buttons: "CANCEL" and "SAVE". The "SAVE" button is also outlined with a red border. The background shows the ADFI dashboard with a sidebar menu containing "Project", "Billing", "API", "Sample Dataset", and "Operation Manual". The main content area shows a "Projects" table with columns "Name", "ID", "Created", and "Actions". The table is currently empty, with a message "No project data. Create a new project by clicking the button on the top right." and a "+ NEW PROJECT" button in the top right corner. The footer of the page reads "Copyright © 2022 AI ROBOTICS LTD. All rights reserved."

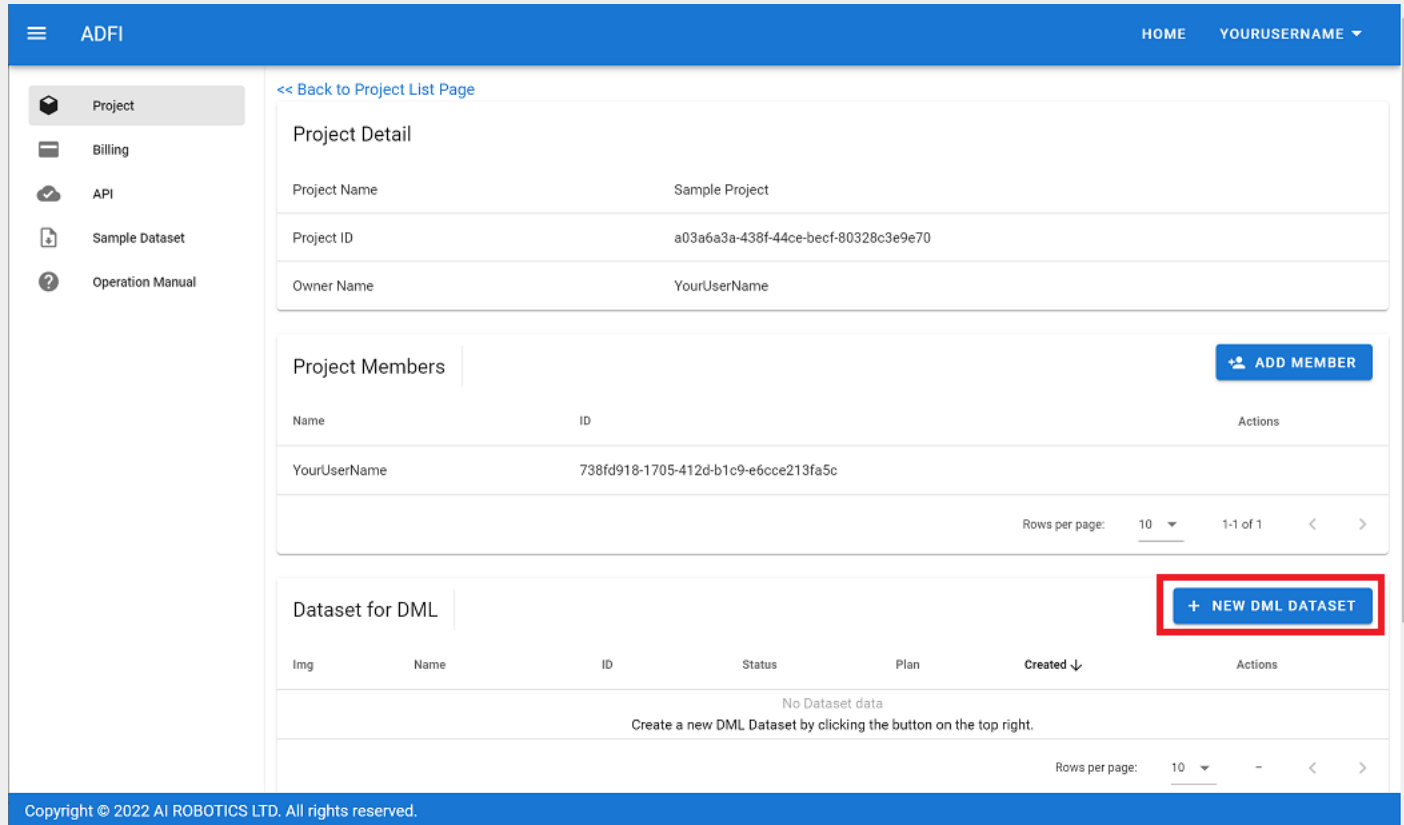
- 新しくプロジェクトが作成されました。作成したプロジェクト名を押してください。プロジェクト詳細画面が表示されます。



The screenshot shows the ADFI web interface. The top navigation bar is blue with the ADFI logo, a hamburger menu, and the text 'ADFI'. On the right side of the bar are links for 'HOME' and 'YOURUSERNAME' with a dropdown arrow. A left sidebar contains a list of menu items: 'Project' (highlighted with a grey background), 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area is titled 'Projects' and features a '+ NEW PROJECT' button in the top right corner. Below this is a table with the following columns: 'Name', 'ID', 'Created ↓', and 'Actions'. A single row is displayed with the name 'Sample Project' (which is highlighted with a red rectangular box), the ID 'a03a6a3a-438f-44ce-becf-80328c3e9e70', and the creation date 'Aug 16, 2022 at 2:56 PM'. The 'Actions' column contains edit and delete icons. At the bottom of the table, there is a pagination control showing 'Rows per page: 10' and '1-1 of 1'. The footer of the page is a blue bar with the text 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

| Name                           | ID                                   | Created ↓               | Actions                                                                                                                                                                 |
|--------------------------------|--------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">Sample Project</a> | a03a6a3a-438f-44ce-becf-80328c3e9e70 | Aug 16, 2022 at 2:56 PM |   |

- プロジェクト詳細画面では、プロジェクトメンバーの追加やデータセットを作成することができます。
- 右側の「NEW **DML** DATASET」ボタンを押してください。
  - 今回はAIアルゴリズムに「DML」アルゴリズムを使用します。もし「PCA」アルゴリズムを利用する場合は右下の「NEW **PCA** DATASET」ボタンを押します。



The screenshot displays the ADFI Project Detail page. The left sidebar contains navigation links: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area is divided into three sections: Project Detail, Project Members, and Dataset for DML. The Project Detail section shows the Project Name (Sample Project), Project ID (a03a6a3a-438f-44ce-becf-80328c3e9e70), and Owner Name (YourUserName). The Project Members section shows a table with one member, YourUserName, and an ID. The Dataset for DML section shows a table with columns: Img, Name, ID, Status, Plan, Created, and Actions. The table is currently empty, and a message states: "No Dataset data. Create a new DML Dataset by clicking the button on the top right." A red box highlights the "+ NEW DML DATASET" button in the top right corner of the Dataset for DML section.

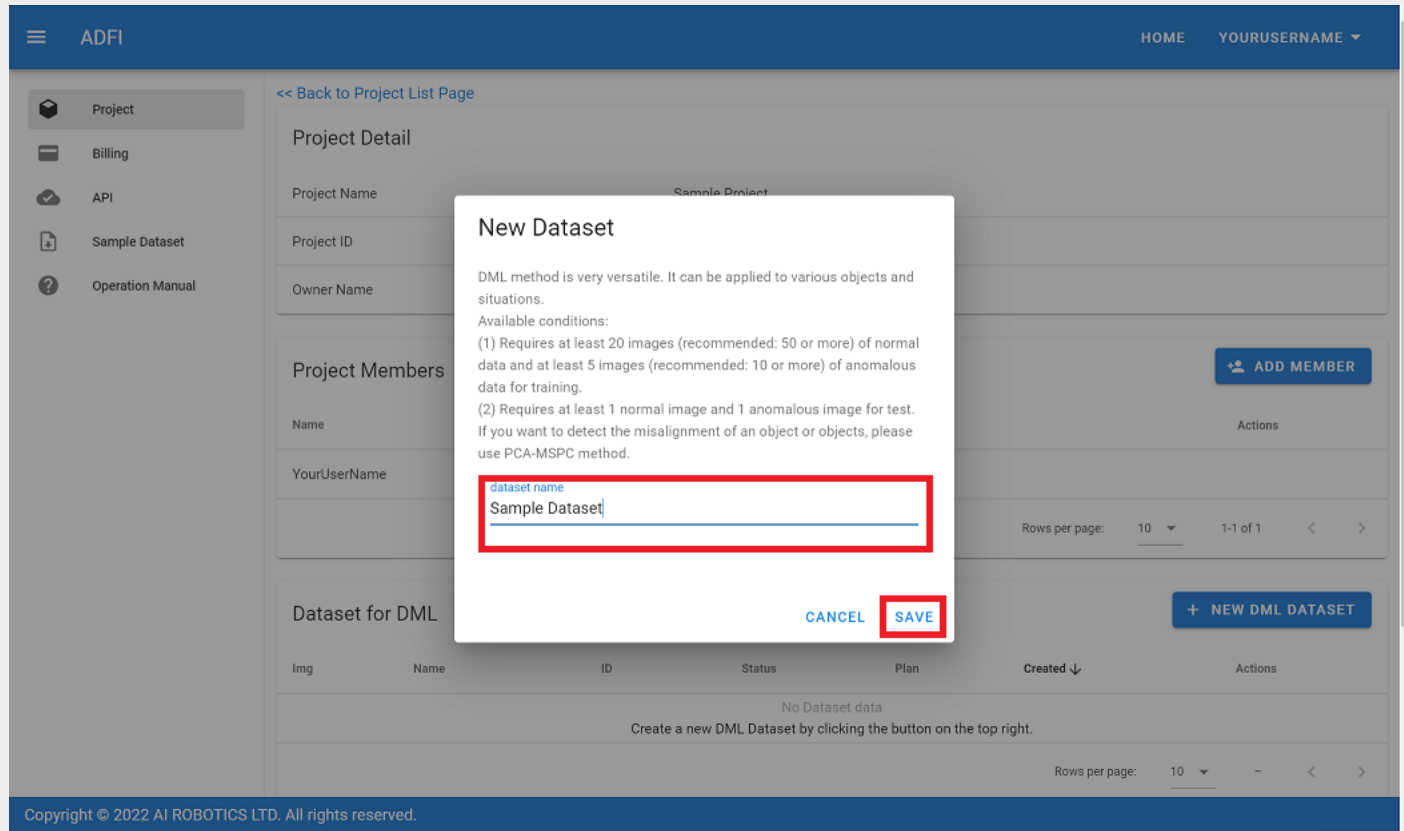
| Project Name | Sample Project                       |
|--------------|--------------------------------------|
| Project ID   | a03a6a3a-438f-44ce-becf-80328c3e9e70 |
| Owner Name   | YourUserName                         |

| Name         | ID                                   | Actions |
|--------------|--------------------------------------|---------|
| YourUserName | 738fd918-1705-412d-b1c9-e6cce213fa5c |         |

| Img                                                                                  | Name | ID | Status | Plan | Created | Actions |
|--------------------------------------------------------------------------------------|------|----|--------|------|---------|---------|
| No Dataset data<br>Create a new DML Dataset by clicking the button on the top right. |      |    |        |      |         |         |

# データセットの準備

- 作成したいデータセット名を入力して「SAVE」を押してください。



The screenshot shows the ADFI web interface with a modal dialog titled "New Dataset" open. The dialog contains the following text:

DML method is very versatile. It can be applied to various objects and situations.

Available conditions:

(1) Requires at least 20 images (recommended: 50 or more) of normal data and at least 5 images (recommended: 10 or more) of anomalous data for training.

(2) Requires at least 1 normal image and 1 anomalous image for test.

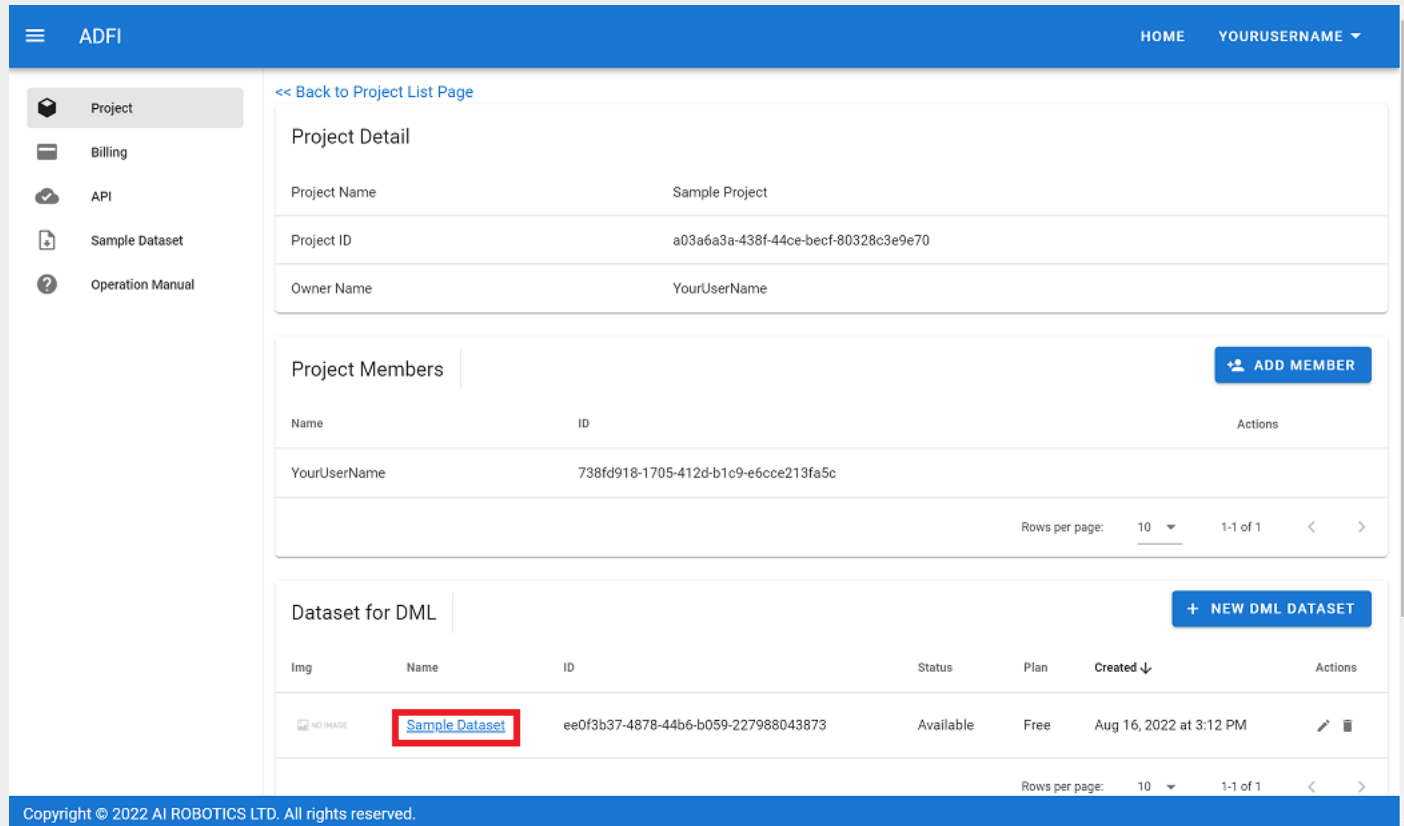
If you want to detect the misalignment of an object or objects, please use PCA-MSPC method.

Below the text is a text input field labeled "dataset name" with the text "Sample Dataset" entered. The input field is highlighted with a red border. At the bottom of the dialog are two buttons: "CANCEL" and "SAVE". The "SAVE" button is also highlighted with a red border.

The background interface shows a sidebar with navigation links: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area displays "Project Detail" for "Sample Project" with fields for Project Name, Project ID, and Owner Name. Below this is a "Project Members" table with columns for Name and YourUserName. At the bottom is a "Dataset for DML" table with columns for Img, Name, ID, Status, Plan, Created, and Actions. The table is currently empty, showing "No Dataset data".

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- 新しくデータセットが作成されました。作成したデータセット名を押してください。データセット詳細画面が表示されます。

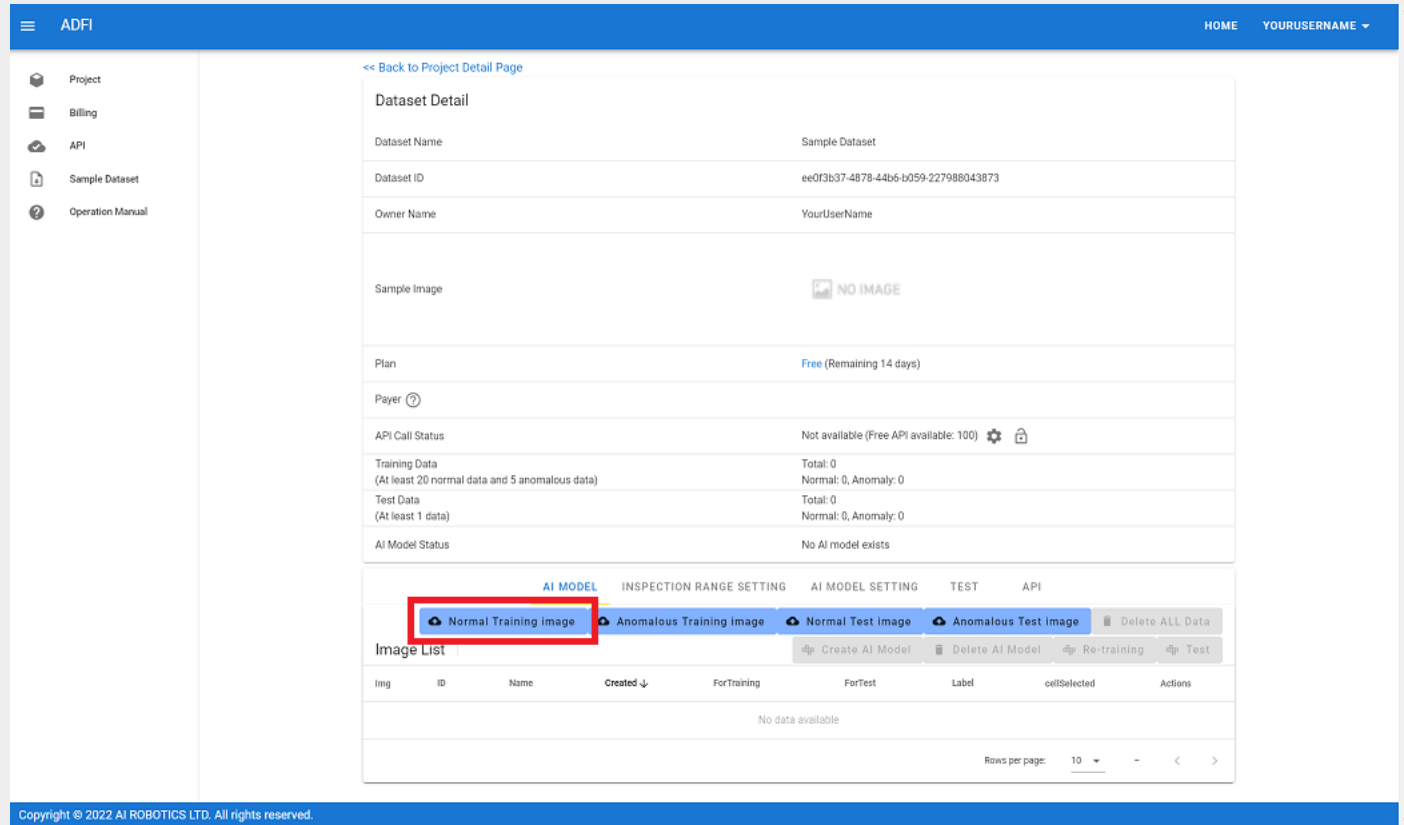


The screenshot displays the ADFI web application interface. The top navigation bar is blue with the ADFI logo, a menu icon, and links for HOME and YOURUSERNAME. The left sidebar contains navigation items: Project (selected), Billing, API, Sample Dataset, and Operation Manual. The main content area is divided into two sections. The 'Project Detail' section shows fields for Project Name (Sample Project), Project ID (a03a6a3a-438f-44ce-becf-80328c3e9e70), and Owner Name (YourUserName). Below this is the 'Project Members' section with a table listing members, including YourUserName with ID 738fd918-1705-412d-b1c9-e6cce213fa5c. The 'Dataset for DML' section features a table with columns: Img, Name, ID, Status, Plan, Created, and Actions. A row is shown with Name 'Sample Dataset' (highlighted with a red box), ID 'ee0f3b37-4878-44b6-b059-227988043873', Status 'Available', Plan 'Free', and Created 'Aug 16, 2022 at 3:12 PM'. The footer contains the copyright notice: Copyright © 2022 AI ROBOTICS LTD. All rights reserved.

| Name         | ID                                   | Actions |
|--------------|--------------------------------------|---------|
| YourUserName | 738fd918-1705-412d-b1c9-e6cce213fa5c |         |

| Img                                                                                 | Name           | ID                                   | Status    | Plan | Created                 | Actions                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|----------------|--------------------------------------|-----------|------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Sample Dataset | ee0f3b37-4878-44b6-b059-227988043873 | Available | Free | Aug 16, 2022 at 3:12 PM |   |

- データセット詳細画面では、AI学習用の画像や性能検証用の画像を登録して、AIの作成や性能検証を行うことができます。
- まず、学習用の正常画像を登録します。「Normal Training image」ボタンを押してください。

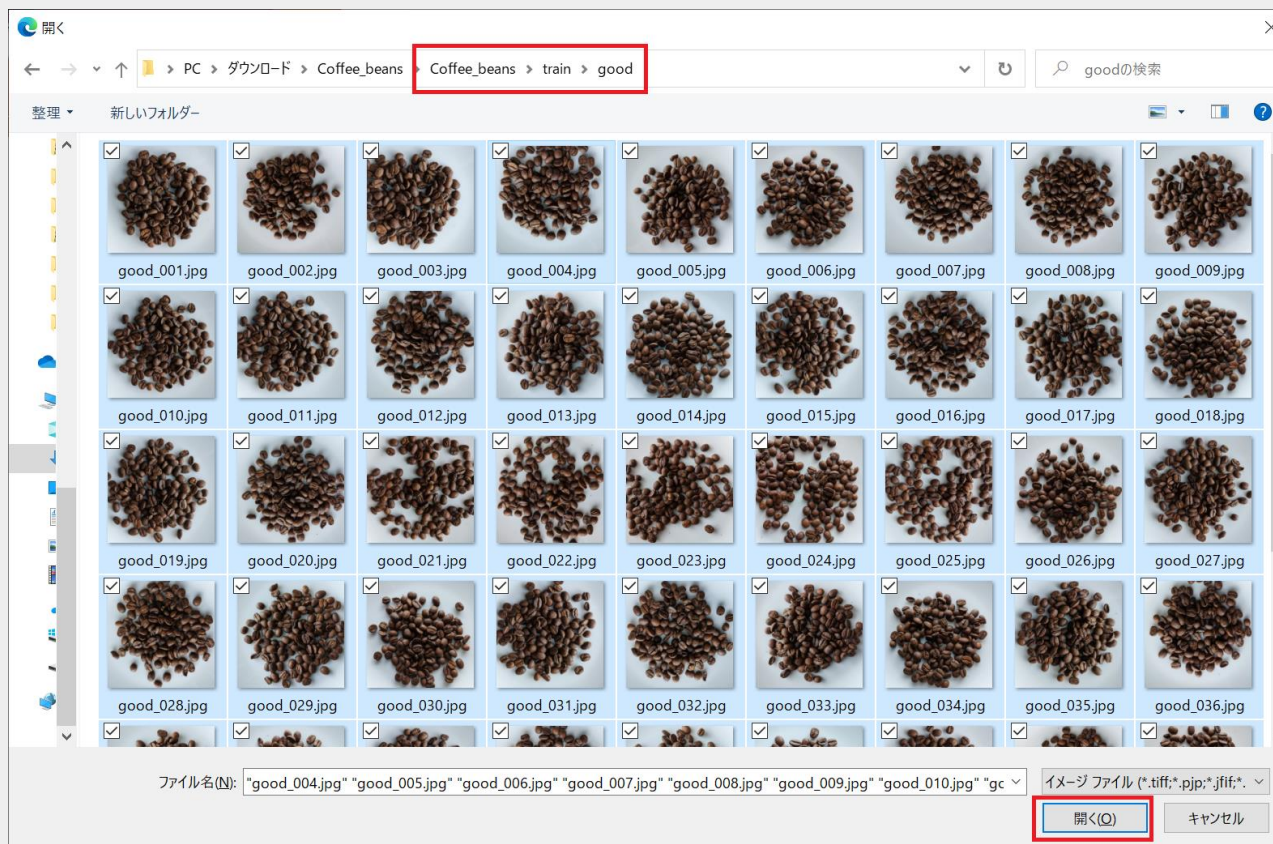


The screenshot displays the 'Dataset Detail' page in the ADFI interface. The page includes a sidebar with navigation links (Project, Billing, API, Sample Dataset, Operation Manual) and a main content area. The main content area shows dataset details such as Dataset Name, Dataset ID, Owner Name, Sample Image, Plan, Payer, API Call Status, Training Data, Test Data, and AI Model Status. Below the details, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. Under the 'AI MODEL' tab, there are buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. The 'Normal Training image' button is highlighted with a red box. Below the buttons is an 'Image List' table with columns: Img, ID, Name, Created, ForTraining, ForTest, Label, cellSelected, and Actions. The table currently shows 'No data available'.

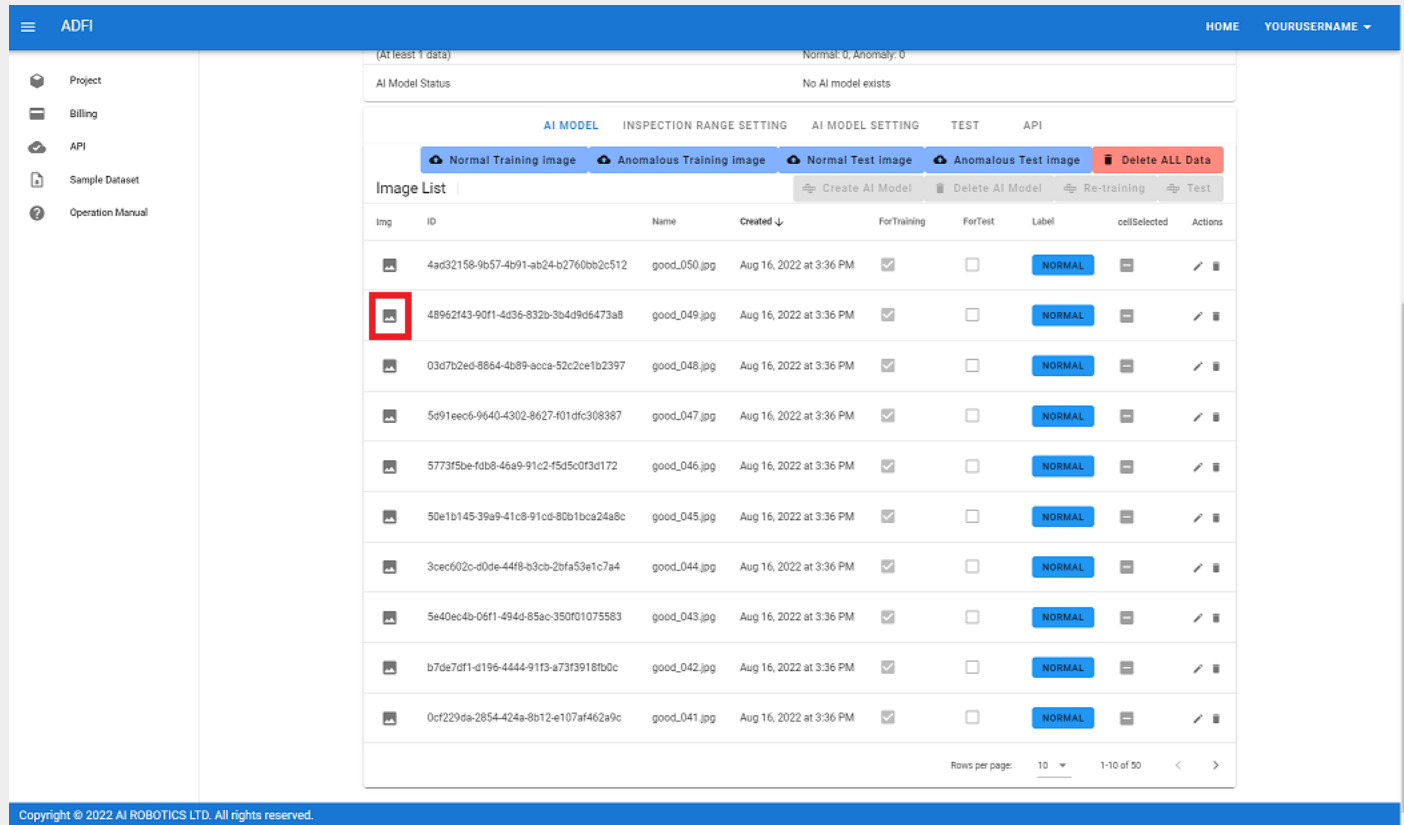
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# データセットの準備

- 先ほど展開したサンプル画像データセットのtrainフォルダ内にあるgoodフォルダ( Coffee\_beans -> train -> good )を開きます。
- goodフォルダ内の全ての画像を選択して、「開く」ボタンを押します。
  - Windowsの場合、「Ctrl」ボタン+「A」ボタンで全部を一括で選択できます。



- 先ほど選択した画像のアップロード完了後、データセット詳細画面の下部に、登録された画像のリストが表示されます。
- 任意の画像情報の左側のアイコンを押してください。登録された画像を確認することができます。



The screenshot displays the ADFI web application interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOUR USERNAME'. The left sidebar contains a list of navigation items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows the 'Image List' table. Above the table, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. Below these tabs are buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. The 'Image List' table has columns for 'Img', 'ID', 'Name', 'Created', 'For Training', 'For Test', 'Label', 'cellSelected', and 'Actions'. The second row of the table is highlighted with a red box around the image icon.

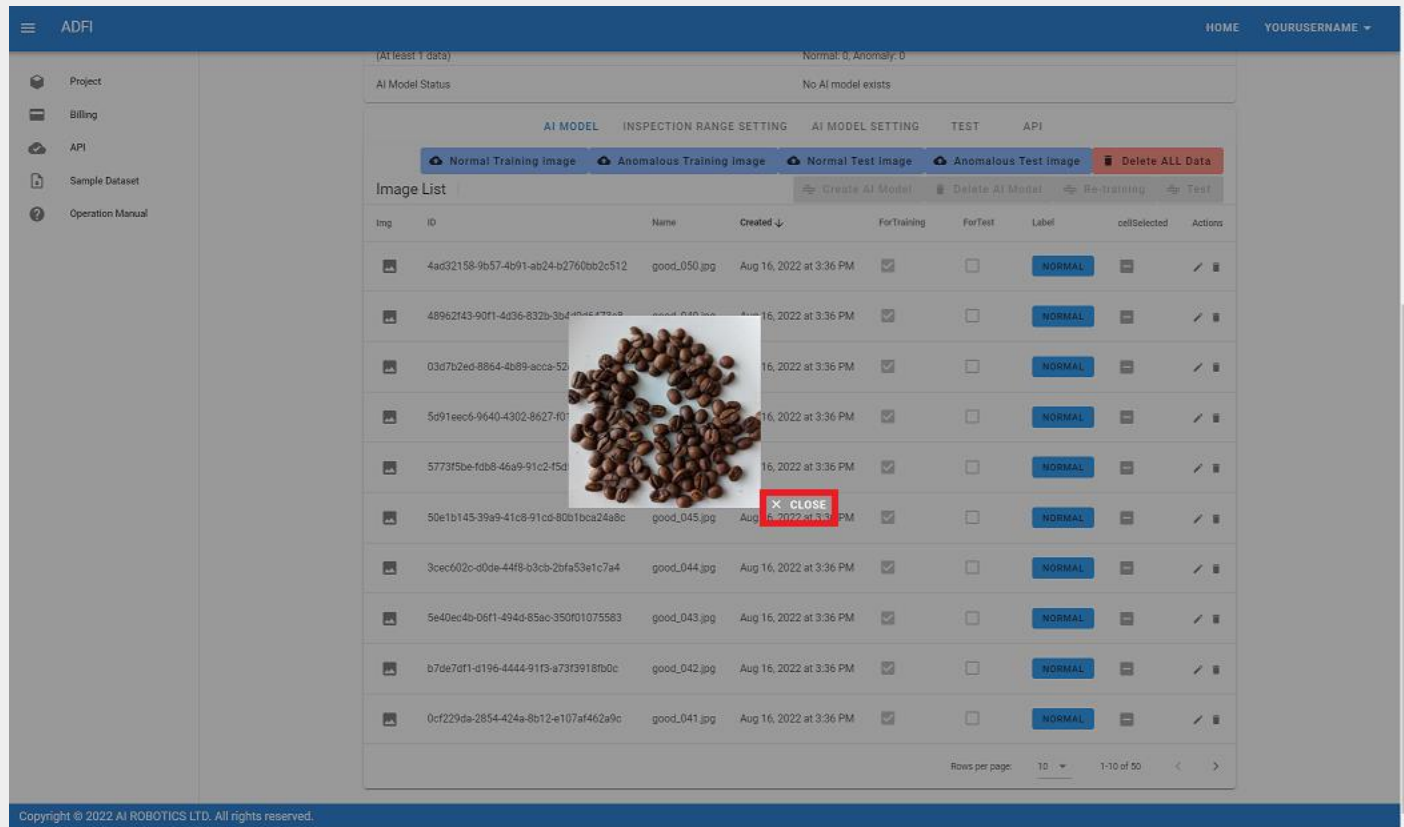
| Img                                                                                 | ID                                   | Name         | Created                 | For Training                        | For Test                 | Label  | cellSelected             | Actions                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|--------------------------------------|--------------|-------------------------|-------------------------------------|--------------------------|--------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 4ad32158-9b57-4b91-ab24-b2760bb2c512 | good_050.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |       |
|    | 48962f43-90f1-4d36-832b-3b4d9d6473a8 | good_049.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |       |
|    | 03d7b2ed-8864-4b89-acc4-52c2ce1b2397 | good_048.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |       |
|    | 5d91eec6-9640-4302-8627-401dfc308387 | good_047.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |       |
|  | 5773f5be-fdb8-46a9-91c2-45d5c0f3d172 | good_046.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |   |
|  | 50e1b145-39a9-41c8-91cd-80b1bca24a8c | good_045.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |   |
|  | 3cec602c-d0de-44f8-b3cb-2bfa53e1c7a4 | good_044.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |   |
|  | 5e40ec4b-06f1-494d-85ac-350f01075583 | good_043.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |   |
|  | b7de7df1-d196-4444-91f3-a73f3918fb0c | good_042.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |   |
|  | 0cf229da-2854-424a-8b12-e107af462a9c | good_041.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |   |

Rows per page: 10 1-10 of 50

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# データセットの準備

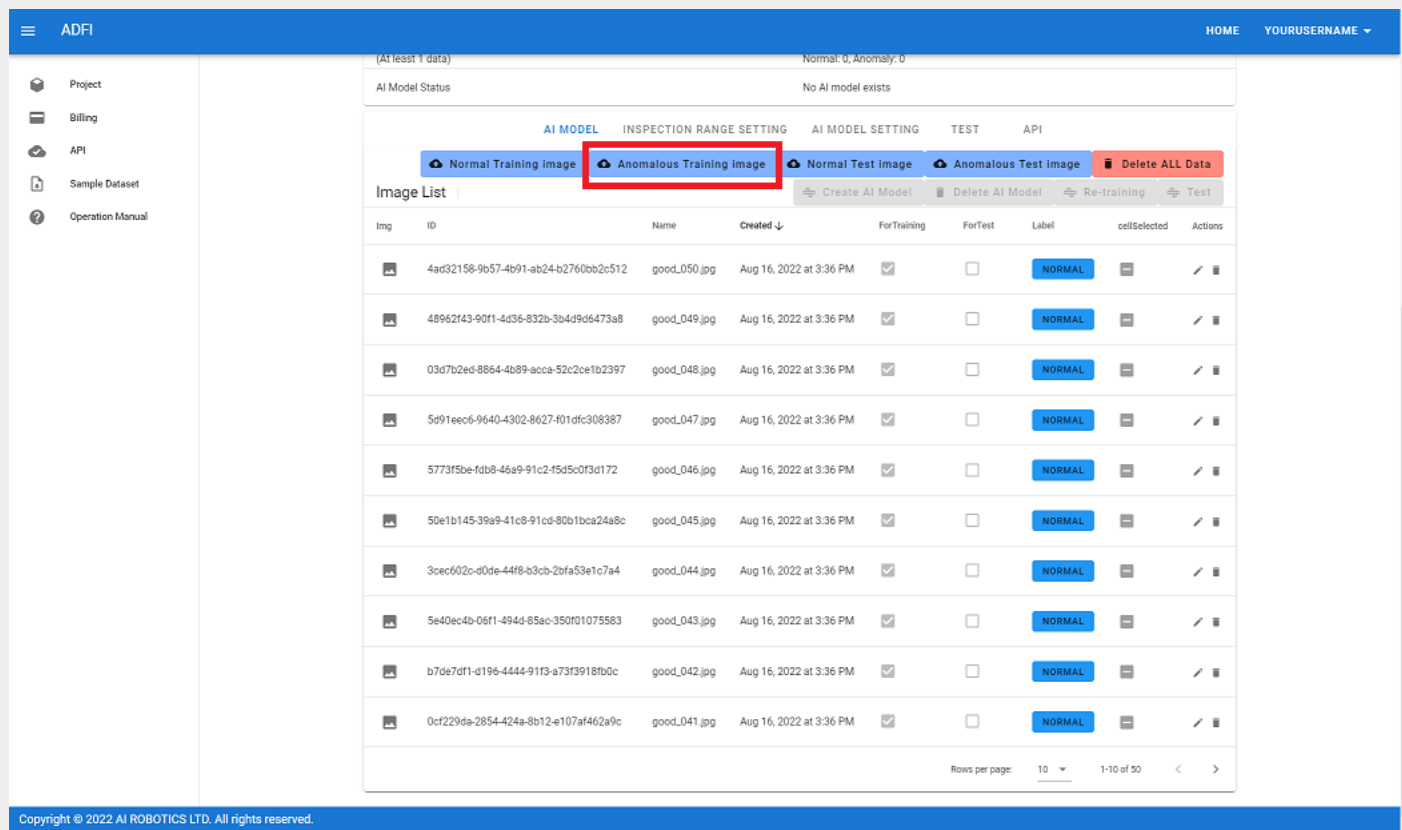
- 登録された画像が表示されます。右下の「CLOSE」を押してください。



The screenshot displays the ADFI web application interface. On the left is a sidebar with navigation links: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows the 'Image List' table. At the top of the table, there are tabs for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', and 'Anomalous Test image', along with a 'Delete ALL Data' button. Below the tabs are buttons for 'Create AI Model', 'Delete AI Model', 'Re-training', and 'Test'. The table itself has columns for 'Img', 'ID', 'Name', 'Created', 'For Training', 'For Test', 'Label', 'cellSelected', and 'Actions'. It contains 10 rows of data, all labeled 'NORMAL'. A modal window is open over the table, showing a large image of coffee beans and a red 'CLOSE' button in the bottom right corner. The footer of the page reads 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

| Img | ID                                   | Name         | Created                 | For Training                        | For Test                 | Label  | cellSelected | Actions |
|-----|--------------------------------------|--------------|-------------------------|-------------------------------------|--------------------------|--------|--------------|---------|
|     | 4ad32158-9b57-4b91-ab24-b276fbb2c512 | good_050.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | 48962f43-90f1-4d36-832b-3b44b4e4f7b8 | good_049.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | 03d7b2e0-8864-4b89-acc8-52b4b4e4f7b8 | good_048.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | 5d91eec6-9640-4302-8627-f0f4b4e4f7b8 | good_047.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | 5773f5be-fdb8-46a9-91c2-45d4b4e4f7b8 | good_046.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | 50e1b145-39a9-41c8-91cd-80b1bca24a8c | good_045.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | 3cec602c-d0de-44f8-b3cb-2bfa53e1c7a4 | good_044.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | 5e40ec4b-d6f1-494d-85ac-350f01075583 | good_043.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | b7de7af1-d196-4444-91f3-a73f3918fb0c | good_042.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |
|     | 0cf229da-2854-424a-8b12-e107af462a9c | good_041.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL |              |         |

- 次に、学習用の異常画像を登録します。「Anomalous Training image」ボタンを押してください。
  - この操作は「DML」アルゴリズムのみ必要です。「PCA」アルゴリズムの場合は、学習用の異常画像の登録は不要です。

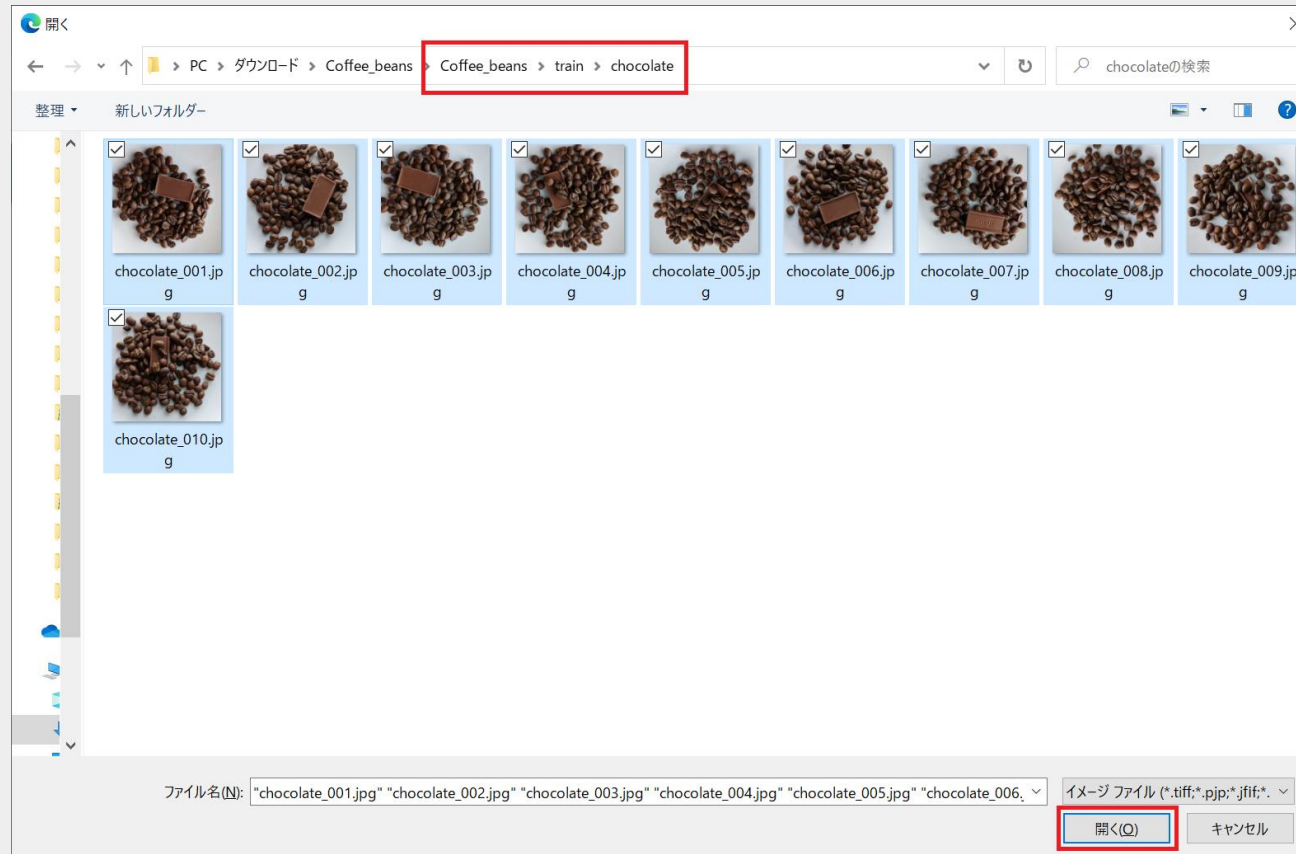


The screenshot displays the ADFI web application interface. On the left is a sidebar with navigation links: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area has a top navigation bar with 'HOME' and 'YOUR USERNAME'. Below this, there's a status section showing '(At least 1 data)' and 'Normal: 0, Anomaly: 0'. A table-like structure contains buttons for 'Normal Training image', 'Anomalous Training image' (highlighted with a red box), 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. Below these buttons is an 'Image List' table with columns: Img, ID, Name, Created, For Training, For Test, Label, cellSelected, and Actions. The table lists 10 normal images, all labeled 'NORMAL'. At the bottom, there's a footer with 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

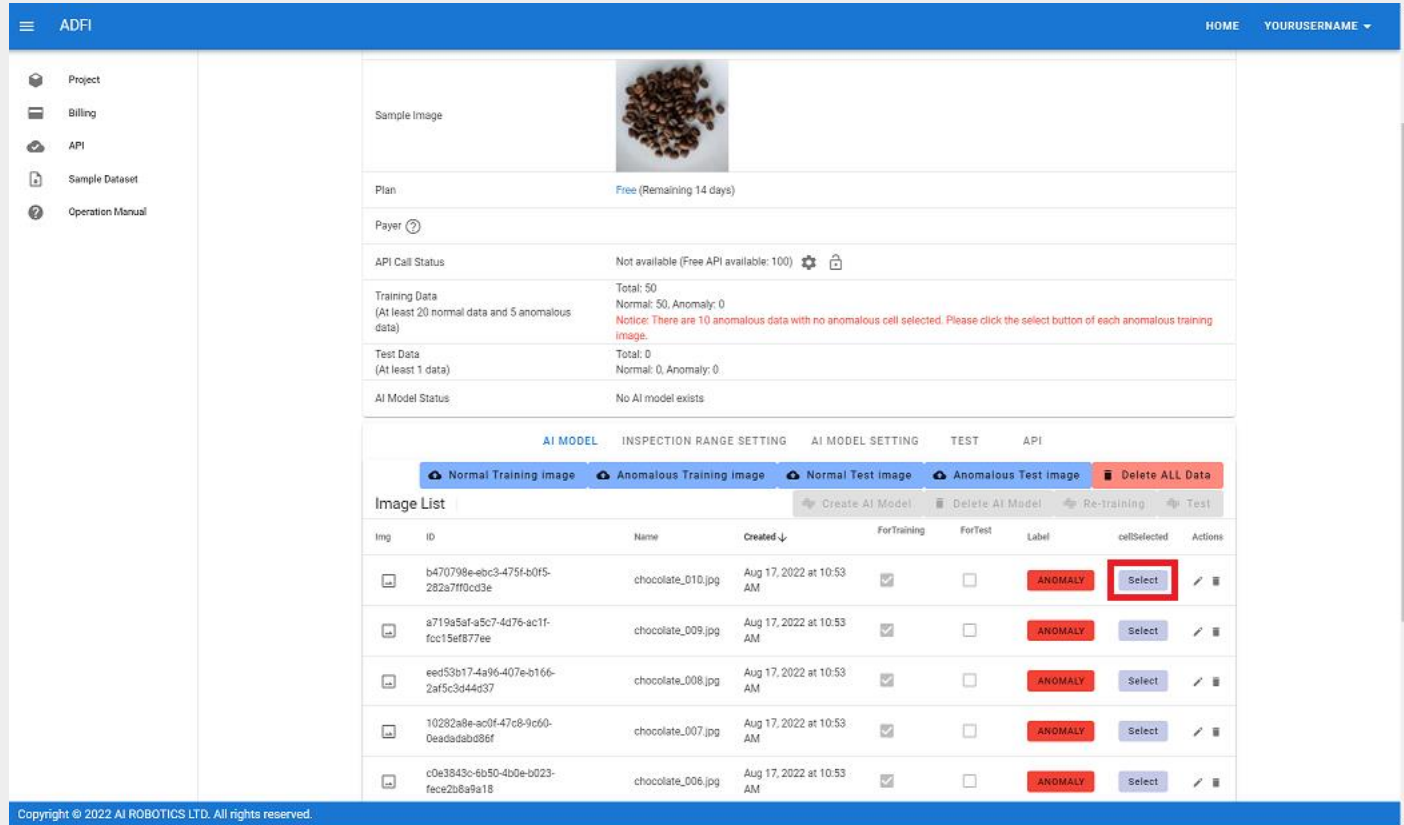
| Img | ID                                   | Name         | Created                 | For Training                        | For Test                 | Label  | cellSelected             | Actions |
|-----|--------------------------------------|--------------|-------------------------|-------------------------------------|--------------------------|--------|--------------------------|---------|
|     | 4ad32158-9b57-4b91-ab24-b2760bb2c512 | good_050.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | 48962f43-90f1-4d36-832b-3b4d9d6473a8 | good_049.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | 03d7b2ed-8864-4b89-acc4-52c2ce1b2397 | good_048.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | 5d91eec6-9640-4302-8627-401dfc308387 | good_047.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | 5773f5be-fdb9-46a9-91c2-45d5c0f3d172 | good_046.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | 50e1b145-39a9-41c8-91c0-80b1bca24a8c | good_045.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | 3cec602c-d0de-44f8-b3cb-2bfa53e1c7a4 | good_044.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | 5e40ec4b-06f1-494d-85ac-350f01075583 | good_043.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | b7de7df1-d196-4444-9113-a73f3918fb0c | good_042.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |
|     | 0cf229da-2854-424a-8b12-e107af462a9c | good_041.jpg | Aug 16, 2022 at 3:36 PM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | NORMAL | <input type="checkbox"/> |         |

# データセットの準備

- サンプル画像データセットのtrainフォルダ内にあるchocolateフォルダ( Coffee\_beans -> train -> chocolate )を開きます。
- chocolateフォルダ内の全ての画像を選択して、「開く」ボタンを押します。
  - Windowsの場合、「Ctrl」ボタン+「A」ボタンで全部を一括で選択できます。



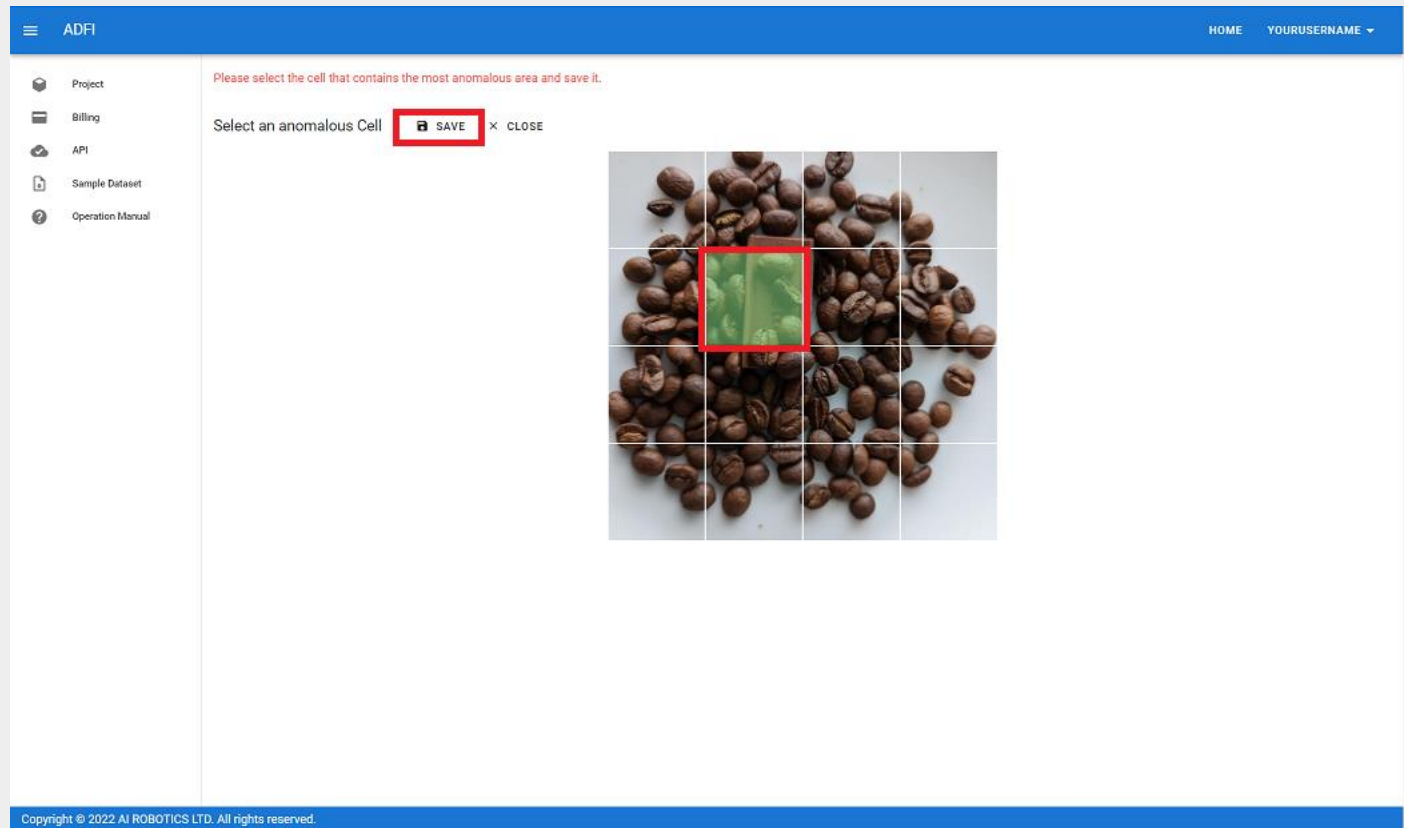
- 異常画像のアップロード完了後、画像リストに異常画像が追加されています。
- 学習用の異常画像は、画像中の異常領域を指定する必要があります。画像情報の右側の「Select」ボタンを押してください。
  - 異常領域を指定していない異常画像は、AIの学習に使用されません。



The screenshot displays the ADFI web application interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOUR USERNAME'. The left sidebar contains a list of navigation items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a 'Sample Image' of chocolate chips, followed by a summary of the current plan (Free, 14 days remaining) and API status. Below this, a table provides details on training and test data counts. The 'Image List' table is the central focus, featuring columns for image ID, name, creation time, and checkboxes for training and testing. The 'Label' column indicates the status of each image, with 'ANOMALY' highlighted in red. The 'Actions' column includes a 'Select' button, which is highlighted with a red box in the first row. The bottom of the interface shows a copyright notice for 2022 AI ROBOTICS LTD.

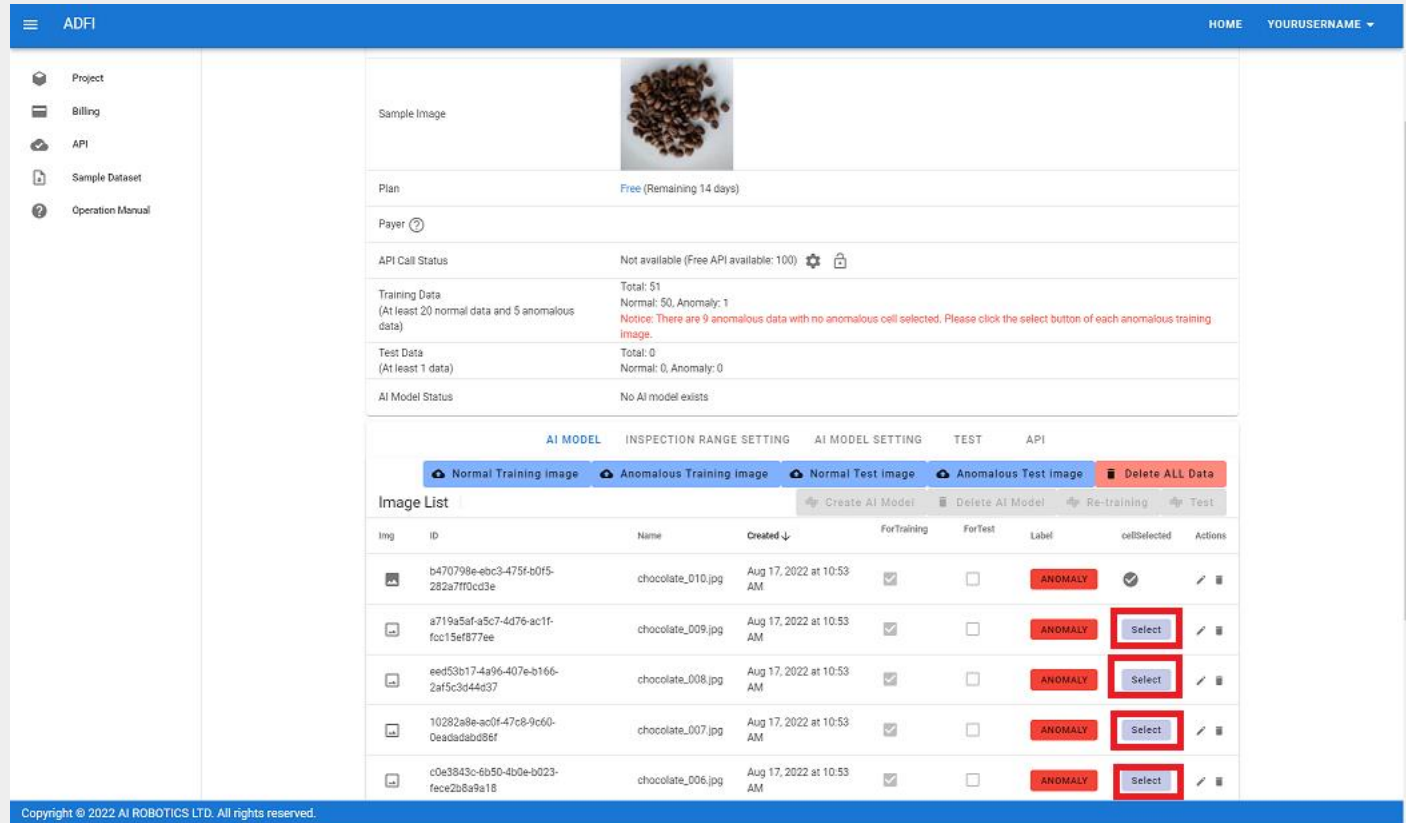
| Img                                                                                 | ID                                   | Name              | Created ↓                | For Training                        | For Test                 | Label   | cellSelected | Actions                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|--------------------------------------|-------------------|--------------------------|-------------------------------------|--------------------------|---------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | b470798e-ebc3-475f-b0f5-282a7ff0cd3e | chocolate_010.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | Select       |   |
|  | a719a5af-95c7-4d76-ac1f-fcc15ef877ee | chocolate_009.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | Select       |   |
|  | eed53b17-4a96-407e-b166-2af5c3d44d37 | chocolate_008.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | Select       |   |
|  | 10282a8e-ac0f-47c8-9c60-0eada3ab086f | chocolate_007.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | Select       |   |
|  | c0e3843c-6b50-4b0e-b023-fec2b8a9a18  | chocolate_006.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | Select       |   |

- 画像中の異常領域を指定します。画像が16分割されている中から、異常な箇所が含まれる領域を1つ選択してクリックしてください。選択した領域は緑色に表示されます。
  - 異常な箇所が複数の領域に存在する場合は、最も特徴的な異常箇所を1つ選んでください。
- 選択後、左上の「SAVE」ボタンを押してください。



# データセットの準備

- 異常領域を指定した画像情報の右側にチェックマークが表示されます。
- 各画像情報に対して同様の操作を繰り返し、全ての「Select」ボタンをチェックマークの表示に変えてください。



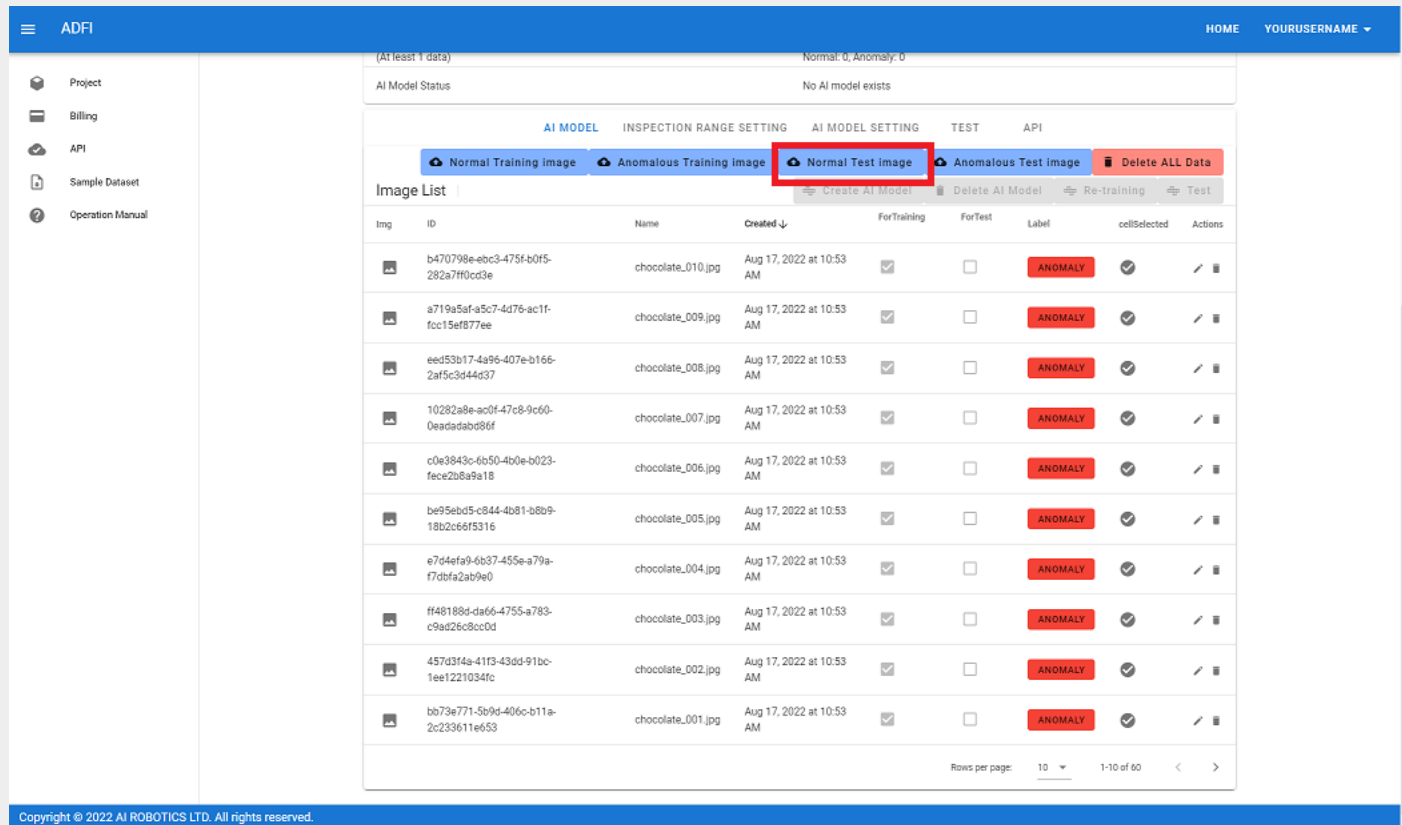
The screenshot displays the ADFI web application interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOUR USERNAME'. The left sidebar contains links for 'Project', 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area shows a 'Sample Image' of chocolate, followed by a summary of the current plan (Free, 14 days remaining), API status, and training/test data counts. Below this, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. The 'AI MODEL' tab is active, showing buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. The 'Image List' table is displayed below, with columns for 'Img', 'ID', 'Name', 'Created', 'For Training', 'For Test', 'Label', 'Selected', and 'Actions'. The table lists five chocolate images, all labeled as 'ANOMALY'. The 'Select' button in the 'Actions' column for each row is highlighted with a red box.

| Img | ID                                   | Name              | Created                  | For Training                        | For Test                 | Label   | Selected                            | Actions                                                            |
|-----|--------------------------------------|-------------------|--------------------------|-------------------------------------|--------------------------|---------|-------------------------------------|--------------------------------------------------------------------|
|     | b470798e-ebc3-479f-b0f5-282a77f0cd3e | chocolate_010.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> | <a href="#">Select</a> <a href="#">Edit</a> <a href="#">Delete</a> |
|     | a719a5af-a5c7-4d76-ac1f-fcc15ef877ee | chocolate_009.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input type="checkbox"/>            | <a href="#">Select</a> <a href="#">Edit</a> <a href="#">Delete</a> |
|     | eed53b17-4a96-407e-b166-2af5c3d44d37 | chocolate_008.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input type="checkbox"/>            | <a href="#">Select</a> <a href="#">Edit</a> <a href="#">Delete</a> |
|     | 10282a8e-ac0f-47c8-9c60-Deadaab086f  | chocolate_007.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input type="checkbox"/>            | <a href="#">Select</a> <a href="#">Edit</a> <a href="#">Delete</a> |
|     | c0e3843c-6d50-4b0e-b023-fce2b8a9a18  | chocolate_006.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input type="checkbox"/>            | <a href="#">Select</a> <a href="#">Edit</a> <a href="#">Delete</a> |

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# データセットの準備

- 全ての学習用の異常画像がチェックマーク表示であることを確認してください。
- 続いて、AIの性能検証に使用する正常画像を登録します。「Normal Test image」ボタンを押してください。



The screenshot shows the ADFI web interface. The top navigation bar includes a menu icon, the ADFI logo, and links for HOME and YOUR USERNAME. The left sidebar contains links for Project, Billing, API, Sample Dataset, and Operation Manual. The main content area displays the 'Image List' table. Above the table, there are tabs for AI MODEL, INSPECTION RANGE SETTING, AI MODEL SETTING, TEST, and API. The 'Normal Test image' button is highlighted with a red box. The table has columns for Img, ID, Name, Created, For Training, For Test, Label, cellSelected, and Actions. All 10 rows show images labeled as 'ANOMALY'.

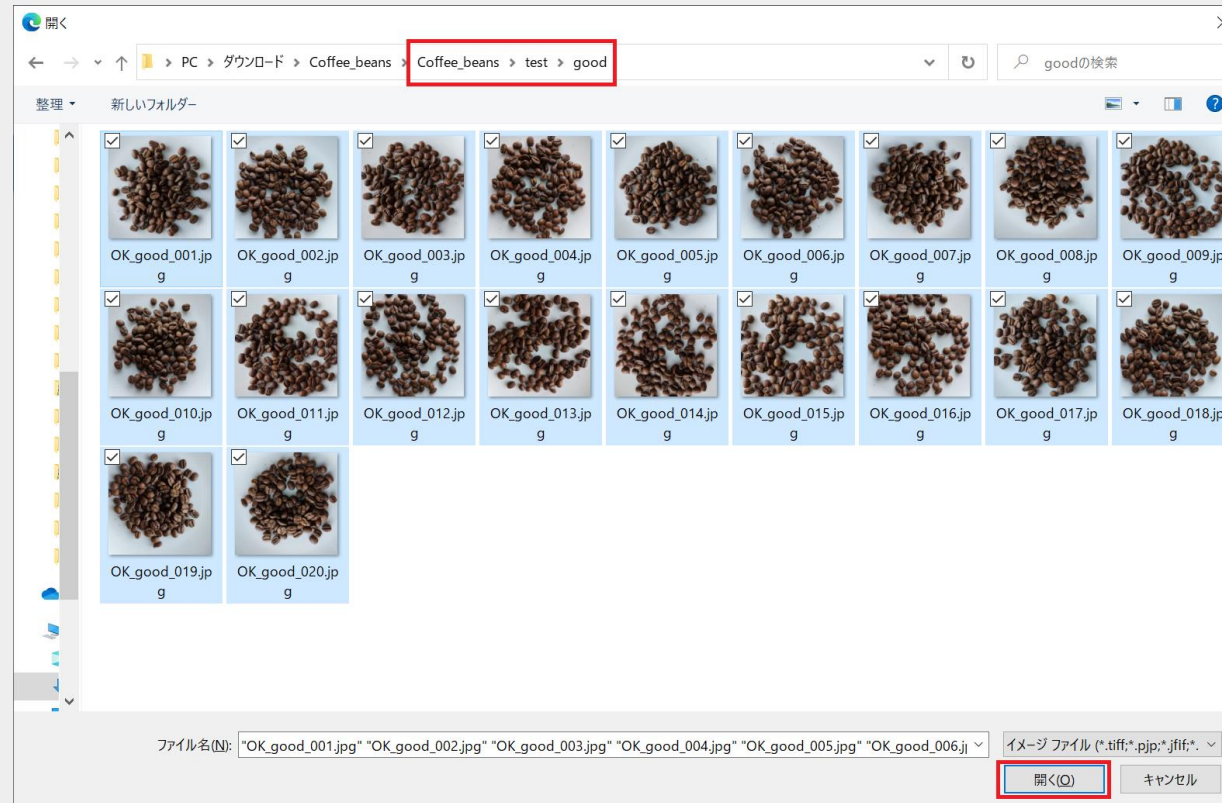
| Img | ID                                   | Name              | Created                  | For Training                        | For Test                 | Label   | cellSelected                        | Actions |
|-----|--------------------------------------|-------------------|--------------------------|-------------------------------------|--------------------------|---------|-------------------------------------|---------|
|     | b470798e-ebc3-475f-b0f5-282a7f0cd3e  | chocolate_010.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | a719a5af-a5c7-4d76-ac1f-fcc15ef877ee | chocolate_009.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | eed53b17-4a96-407e-b166-2af5c3d44d37 | chocolate_008.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | 10282a8e-ac0f-47c8-9c60-0eadaabdb86f | chocolate_007.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | c0e3843c-bb50-4b0e-b023-fce2b8a9a18  | chocolate_006.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | be95ebd5-c844-4b81-b8b9-18b2c6f5316  | chocolate_005.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | e7d4afa9-6b37-455e-a79a-f7dbfa2ab9e0 | chocolate_004.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | ff48188d-da66-4755-a783-c9ad26c9cc0d | chocolate_003.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | 457d314e-41f3-43dd-91bc-1ee1221034fc | chocolate_002.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |
|     | bb73e771-5b9d-406c-b11a-2c233611e653 | chocolate_001.jpg | Aug 17, 2022 at 10:53 AM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | ANOMALY | <input checked="" type="checkbox"/> |         |

Rows per page: 10 1-10 of 60

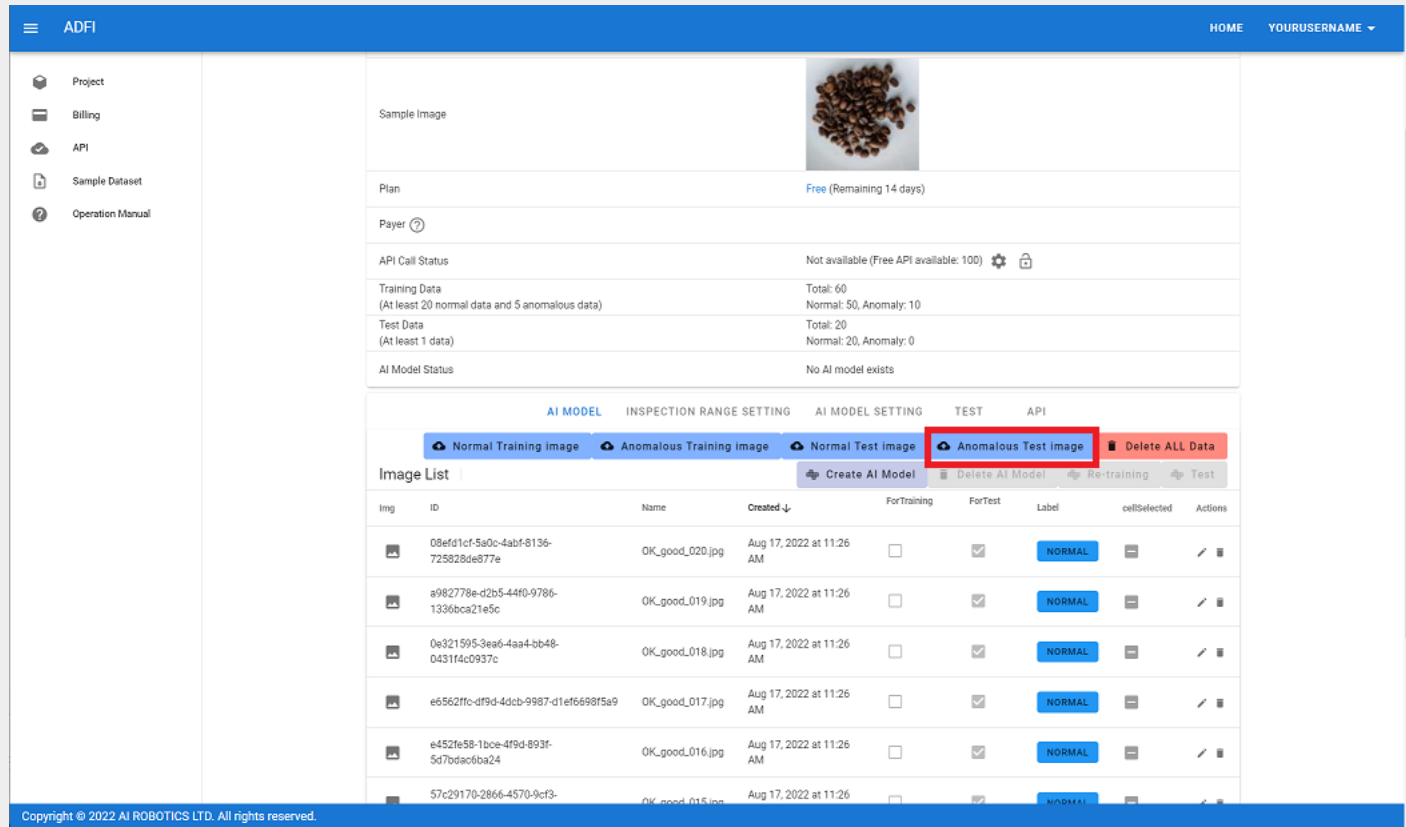
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## データセットの準備

- サンプル画像データセットのtestフォルダ内にあるgoodフォルダ( Coffee\_beans -> test -> good )を開きます。
- goodフォルダ内の全ての画像を選択して、「開く」ボタンを押します。
  - Windowsの場合、「Ctrl」ボタン+「A」ボタンで全部を一括で選択できます。



- 正常画像のアップロード完了後、画像リストに性能検証用の正常画像が追加されています。
- 最後に、AIの性能検証に使用する異常画像を登録します。「Anomalous Test image」ボタンを押してください。



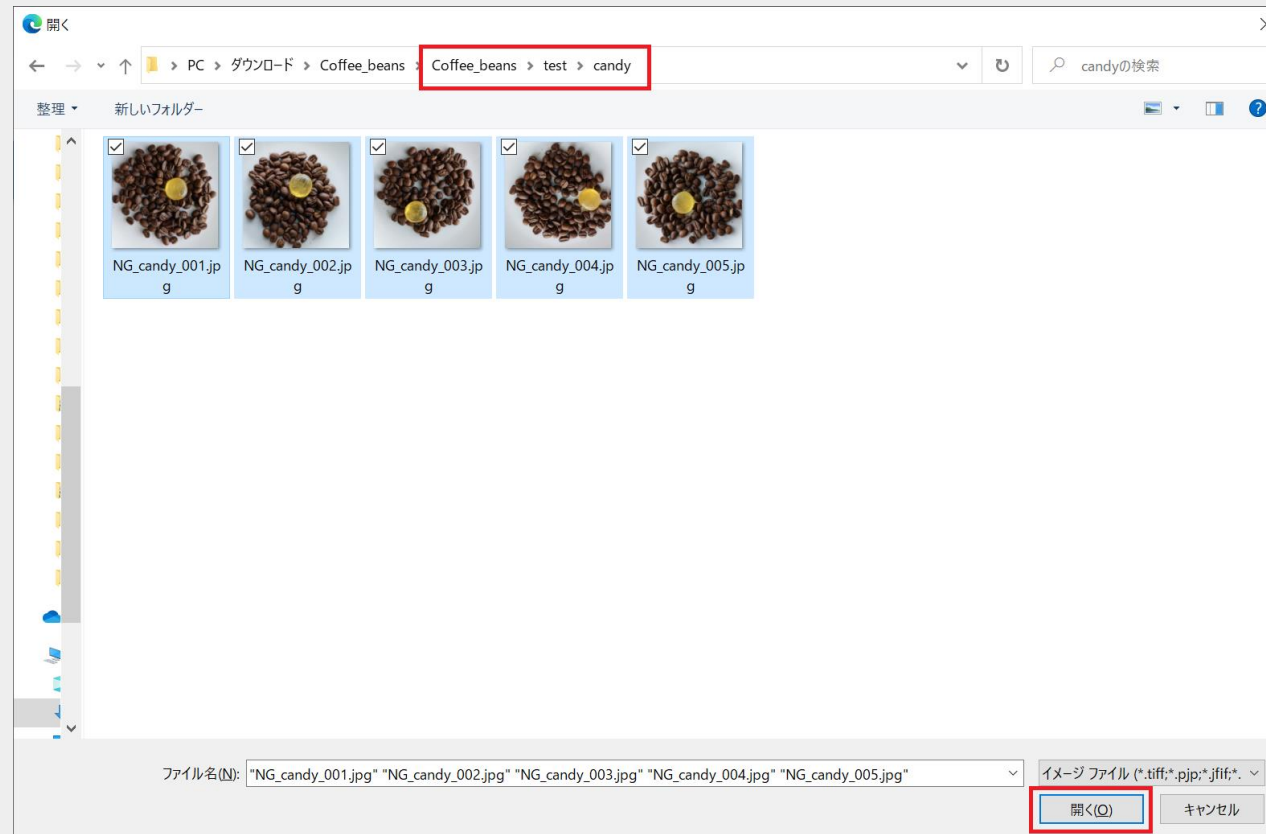
The screenshot displays the ADFI web application interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOUR USERNAME'. The left sidebar contains a list of navigation items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a 'Sample Image' of coffee beans, followed by a table of project details including Plan, Payer, API Call Status, Training Data, Test Data, and AI Model Status. Below this, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. The 'TEST' tab is active, showing a row of buttons: 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image' (highlighted with a red box), and 'Delete ALL Data'. Below the buttons is the 'Image List' table, which contains columns for 'Img', 'ID', 'Name', 'Created', 'For Training', 'For Test', 'Label', 'Selected', and 'Actions'. The table lists five normal training images, all labeled 'NORMAL'.

| Img | ID                                   | Name            | Created                  | For Training             | For Test                            | Label  | Selected                 | Actions                                     |
|-----|--------------------------------------|-----------------|--------------------------|--------------------------|-------------------------------------|--------|--------------------------|---------------------------------------------|
|     | 08efd1cf-5a0c-4abf-8136-725828de877e | OK_good_020.jpg | Aug 17, 2022 at 11:26 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | NORMAL | <input type="checkbox"/> | <a href="#">Edit</a> <a href="#">Delete</a> |
|     | a982778e-d2b5-44f0-9786-1336bca21e5c | OK_good_019.jpg | Aug 17, 2022 at 11:26 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | NORMAL | <input type="checkbox"/> | <a href="#">Edit</a> <a href="#">Delete</a> |
|     | 0e321595-3ea6-4aa4-bb48-0431f4c0937c | OK_good_018.jpg | Aug 17, 2022 at 11:26 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | NORMAL | <input type="checkbox"/> | <a href="#">Edit</a> <a href="#">Delete</a> |
|     | e6562ffc-df9d-4dcb-9987-d1ef6698f5a9 | OK_good_017.jpg | Aug 17, 2022 at 11:26 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | NORMAL | <input type="checkbox"/> | <a href="#">Edit</a> <a href="#">Delete</a> |
|     | e452fe58-1bce-4f9d-893f-5d7bdac6ba24 | OK_good_016.jpg | Aug 17, 2022 at 11:26 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | NORMAL | <input type="checkbox"/> | <a href="#">Edit</a> <a href="#">Delete</a> |
|     | 57c29170-2866-4570-9cf3-             | OK_good_015.jpg | Aug 17, 2022 at 11:26 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | NORMAL | <input type="checkbox"/> | <a href="#">Edit</a> <a href="#">Delete</a> |

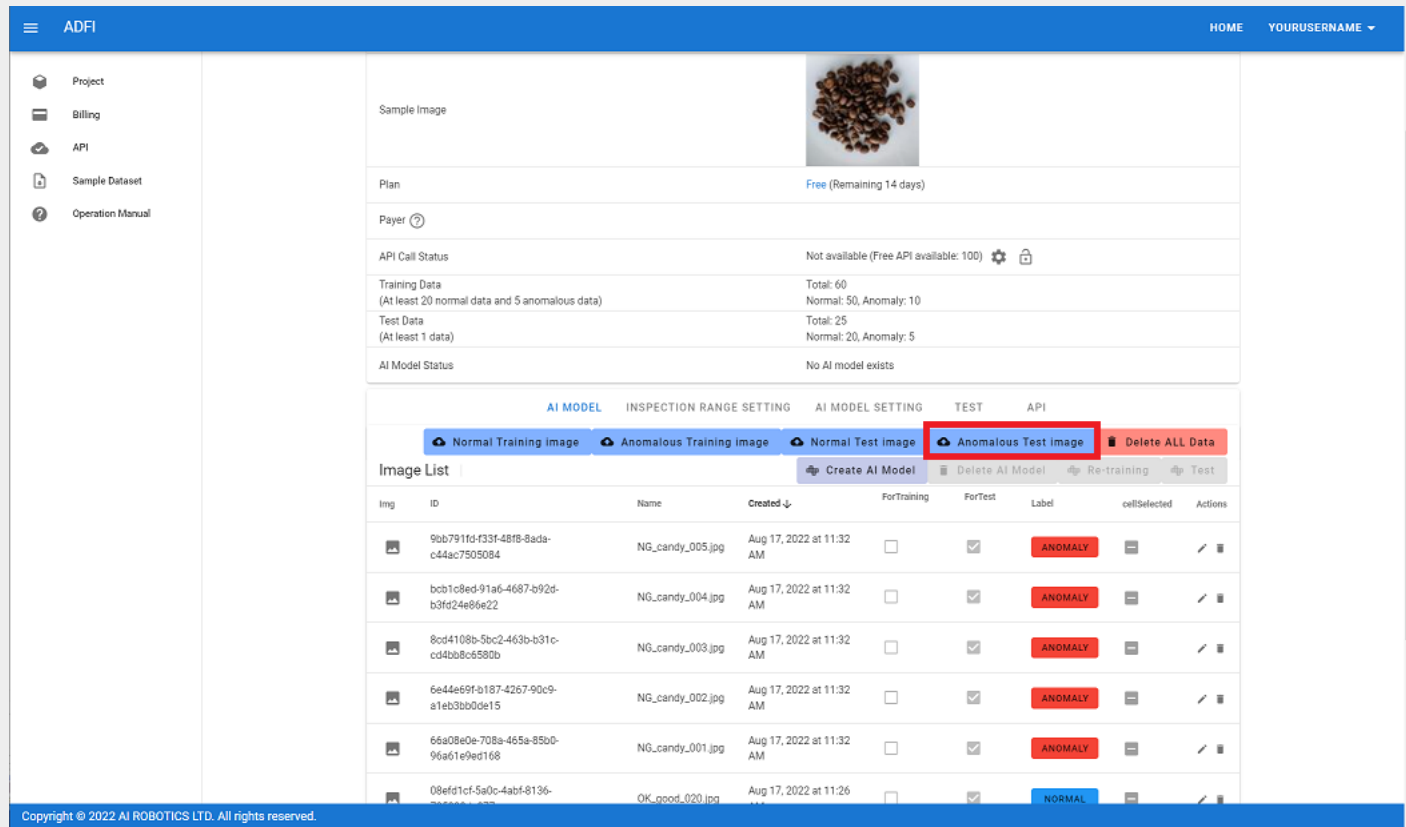
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# データセットの準備

- サンプル画像データセットのtestフォルダ内にあるcandyフォルダ( Coffee\_beans -> test -> candy)を開きます。
  - 今回、学習用の異常画像にはcandyは含まれていませんが、ADFIは学習させていない異常でも検出することができます。
- candyフォルダ内の全ての画像を選択して、「開く」ボタンを押します。



- candyの異常画像のアップロード完了後、画像リストに性能検証用の異常画像が追加されています。
- さらに、性能検証用の異常画像（chocolate）を追加します。「Anomalous Test image」ボタンを押してください。



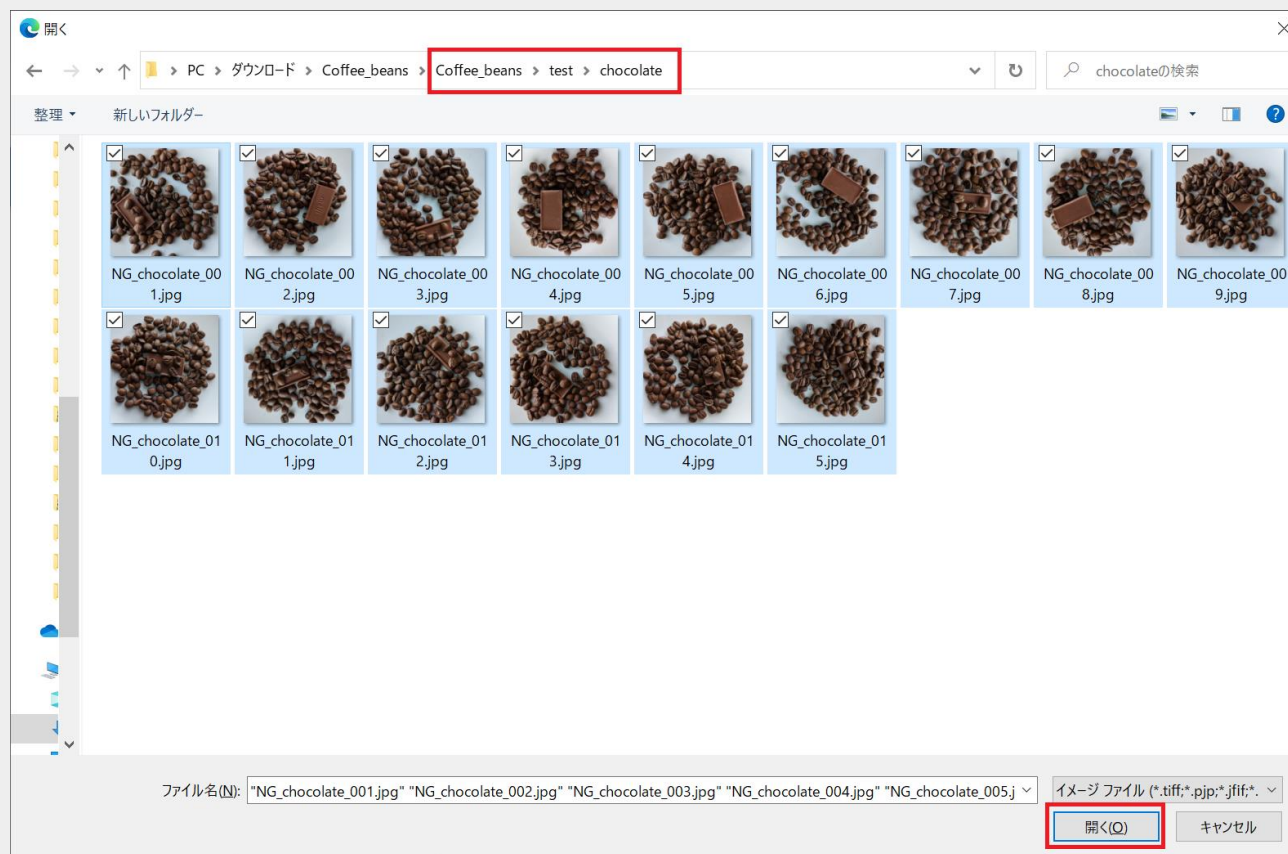
The screenshot displays the ADFI web interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOUR USERNAME'. The left sidebar contains a list of navigation items: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows a 'Sample Image' of coffee beans. Below this, a 'Plan' section indicates 'Free (Remaining 14 days)'. The 'API Call Status' is 'Not available (Free API available: 100)'. The 'Training Data' section shows 'Total: 60' (Normal: 50, Anomaly: 10). The 'Test Data' section shows 'Total: 25' (Normal: 20, Anomaly: 5). The 'AI Model Status' is 'No AI model exists'. The 'AI MODEL' tab is selected, and the 'Anomalous Test image' button is highlighted in red. Below the buttons, the 'Image List' table is displayed with columns: Img, ID, Name, Created, For Training, For Test, Label, and Actions. The table contains five rows of data, all labeled 'ANOMALY'.

| Img | ID                                   | Name             | Created                  | For Training             | For Test                            | Label   | Actions |
|-----|--------------------------------------|------------------|--------------------------|--------------------------|-------------------------------------|---------|---------|
|     | 9bb791fd-f33f-48f8-8ada-c44ac7505084 | NG_candy_005.jpg | Aug 17, 2022 at 11:32 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | bcb1c8ed-91a6-4687-b92d-b3fd24e86e22 | NG_candy_004.jpg | Aug 17, 2022 at 11:32 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | 8cd4108b-5bc2-463b-b31c-cd4bb8c6580b | NG_candy_003.jpg | Aug 17, 2022 at 11:32 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | 6e44e69f-b187-4267-90c9-a1eb3bb0de15 | NG_candy_002.jpg | Aug 17, 2022 at 11:32 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | 66a08e0e-708a-465a-85b0-96a61e9ed168 | NG_candy_001.jpg | Aug 17, 2022 at 11:32 AM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |

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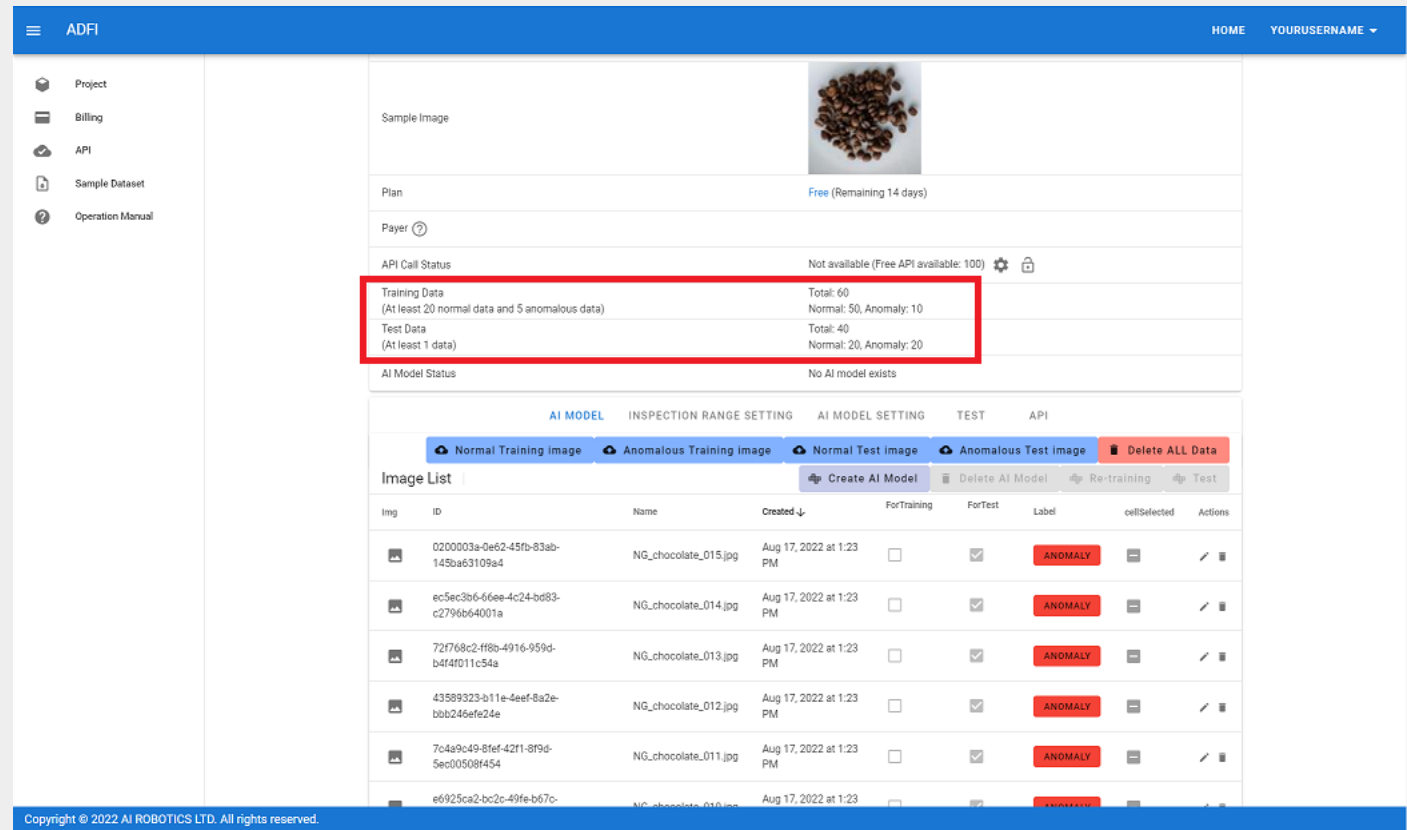
# データセットの準備

- サンプル画像データセットのtestフォルダ内にあるchocolateフォルダ( Coffee\_beans -> test -> chocolate)を開きます。
- chocolateフォルダ内の全ての画像を選択して、「開く」ボタンを押します。



# データセットの準備

- chocolateの異常画像のアップロード完了後、画像リストに性能検証用の異常画像が追加されています。
- 「Training Data」「Test Data」の数を確認してください。AIの学習用と性能検証用に登録された画像数を表しています。これでデータセットの準備は完了です。



The screenshot displays the ADFI web interface. On the left is a sidebar with navigation links: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area shows the 'Sample Image' as a pile of chocolate chips. Below this, a table summarizes the dataset status:

| Category                                                        | Details                                 |
|-----------------------------------------------------------------|-----------------------------------------|
| Plan                                                            | Free (Remaining 14 days)                |
| Payer                                                           | ?                                       |
| API Call Status                                                 | Not available (Free API available: 100) |
| Training Data<br>(At least 20 normal data and 5 anomalous data) | Total: 60<br>Normal: 50, Anomaly: 10    |
| Test Data<br>(At least 1 data)                                  | Total: 40<br>Normal: 20, Anomaly: 20    |
| AI Model Status                                                 | No AI model exists                      |

Below the summary table, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. The 'AI MODEL' tab is active, showing sub-tabs for 'Normal Training Image', 'Anomalous Training Image', 'Normal Test Image', 'Anomalous Test Image', and 'Delete ALL Data'. The 'Image List' section contains a table with columns: Img, ID, Name, Created, ForTraining, ForTest, Label, and Actions. The table lists several chocolate images, all labeled as 'ANOMALY'.

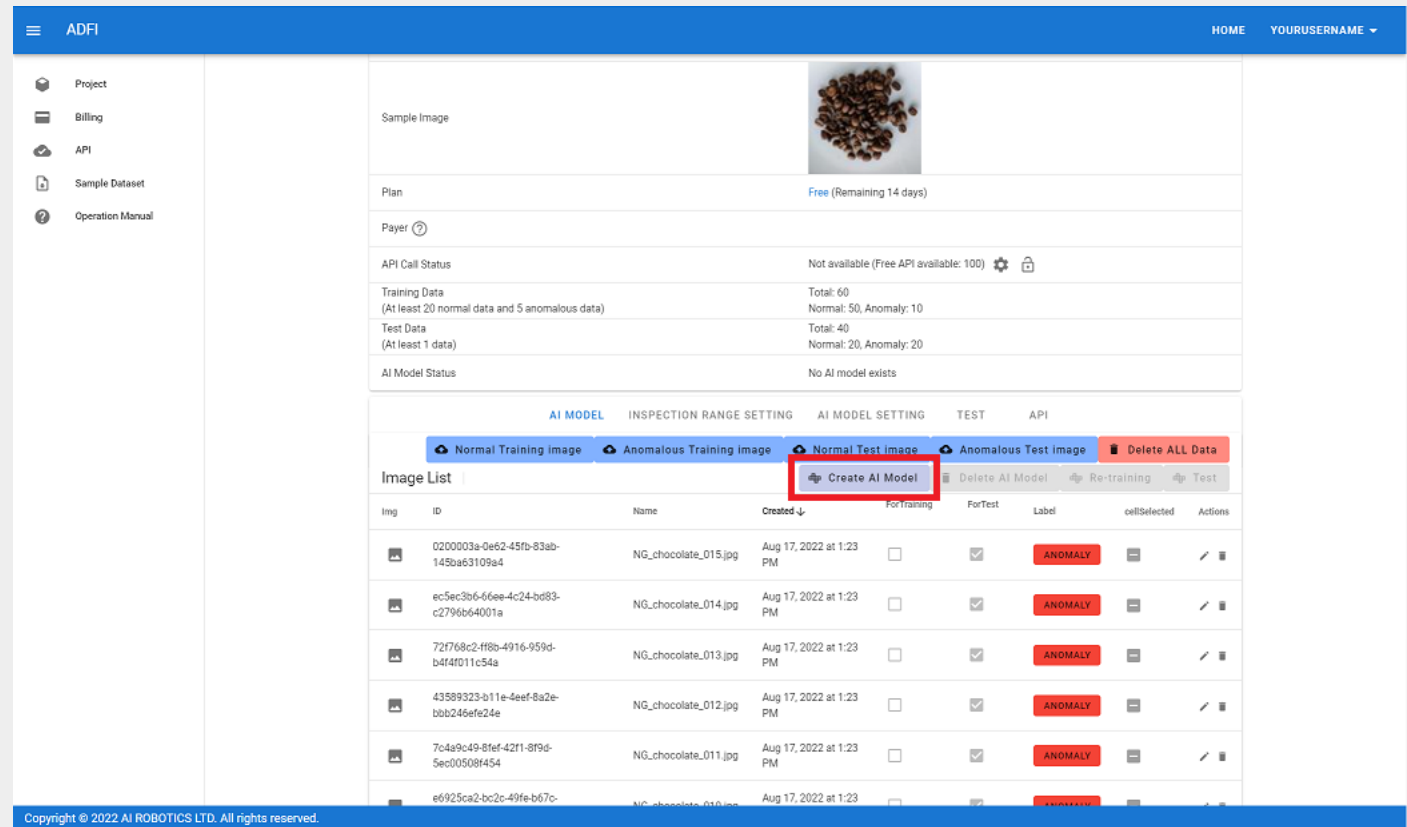
| Img | ID                                   | Name                 | Created                 | ForTraining              | ForTest                             | Label   | Actions |
|-----|--------------------------------------|----------------------|-------------------------|--------------------------|-------------------------------------|---------|---------|
|     | 0200003a-0e62-45fb-83ab-145ba63109a4 | NG_chocolate_015.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | ec5ec3b6-66ee-4c24-bd83-c279bb64001a | NG_chocolate_014.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | 72f768c2-f18b-4916-959d-b4f4011c54a  | NG_chocolate_013.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | 43589323-b11e-4eef-8a2e-bbb246efe24e | NG_chocolate_012.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | 7c4a9c49-8fef-42f1-8f9d-5ec00508f454 | NG_chocolate_011.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |
|     | e6925ca2-bc2c-49fe-b67c-             | NG_chocolate_010.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |         |

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# 3. 画像検査AIの作成

# 画像検査AIの作成

- データセットの準備が整ったら、画像検査AIを作成します。
- 中央の「Create AI Model」を押してください。AIの学習が開始されます。

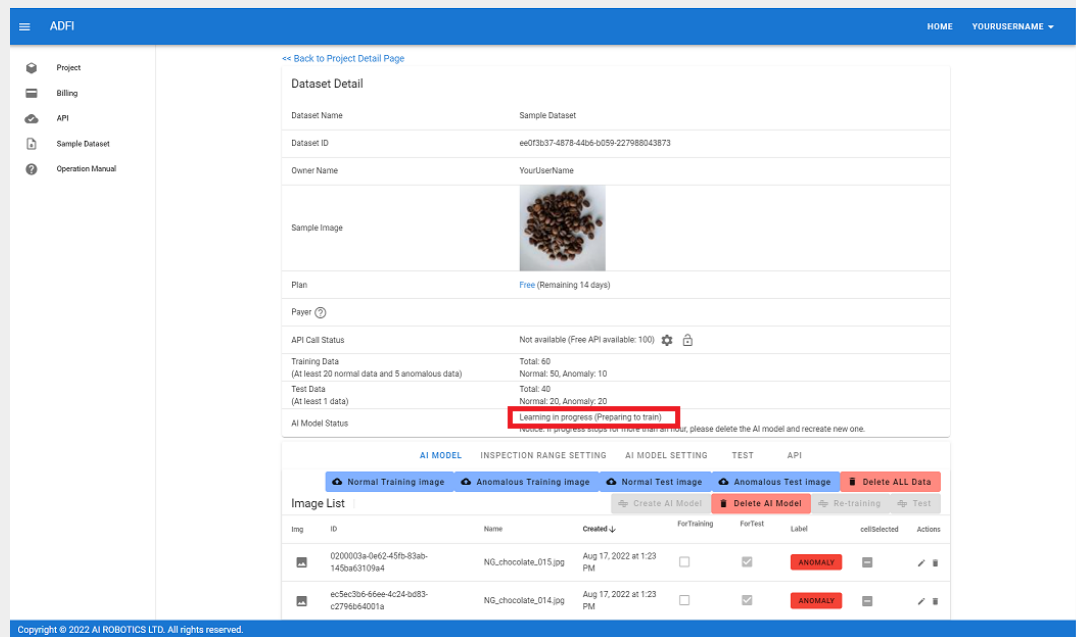


The screenshot displays the ADFI web application interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOUR USERNAME'. A left sidebar contains navigation items: 'Project', 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area is divided into two sections. The upper section, titled 'Sample Image', shows a photo of coffee beans and various status fields: 'Plan' (Free, Remaining 14 days), 'Payer' (with a help icon), 'API Call Status' (Not available, Free API available: 100), 'Training Data' (Total: 60, Normal: 50, Anomaly: 10), 'Test Data' (Total: 40, Normal: 20, Anomaly: 20), and 'AI Model Status' (No AI model exists). The lower section, titled 'Image List', features tabs for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. Below these tabs is a table with columns: 'Img', 'ID', 'Name', 'Created', 'For Training', 'For Test', 'Label', 'cellSelected', and 'Actions'. The 'Create AI Model' button is highlighted with a red box. The footer contains the text 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

| Img | ID                                   | Name                 | Created                 | For Training             | For Test                            | Label   | cellSelected             | Actions |
|-----|--------------------------------------|----------------------|-------------------------|--------------------------|-------------------------------------|---------|--------------------------|---------|
|     | 0200003a-0e62-45fb-83ab-145ba63109a4 | NG_chocolate_015.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |         |
|     | ec5ec3b6-66ee-4c24-bd83-c2796b64001a | NG_chocolate_014.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |         |
|     | 72f768c2-f88b-4916-959d-b4f4f011c54a | NG_chocolate_013.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |         |
|     | 43589323-b11e-4eef-8a2e-bbb246efe24e | NG_chocolate_012.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |         |
|     | 7c4e9c49-8fef-42f1-8f9d-5ec00508f454 | NG_chocolate_011.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |         |
|     | e6925ca2-bc2c-49fe-b67c-             | NG_chocolate_010.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |         |

# 画像検査AIの作成

- AIの学習が開始されると、「AI Model Status」に「Learning in progress (Preparing to train)」と表示されます。
- しばらくすると、「Learning in progress (6.6%)」のように学習の進捗が表示されます。
- AIの学習が完了するまで待ちます。
  - AIの学習時間は学習用画像の数によって変わります。通常は15分～60分程度で学習が完了します。
  - 万が一、数時間経っても進捗が止まっている場合は、「Delete AI Model」を押してから、再度「Create AI Model」を押してください。



ADF I

HOME YOURUSERNAME

Project  
Billing  
API  
Sample Dataset  
Operation Manual

Dataset Detail

Dataset Name: Sample Dataset

Dataset ID: ee0f3b37-4b78-44b6-b059-227988043873

Owner Name: YourUserName

Sample Image

Plan: Free (Remaining 14 days)

Payer

API Call Status: Not available (Free API available: 100)

Training Data (At least 20 normal data and 5 anomalous data): Total: 60, Normal: 50, Anomaly: 10

Test Data (At least 1 data): Total: 40, Normal: 20, Anomaly: 20

AI Model Status: Learning in progress (Preparing to train)

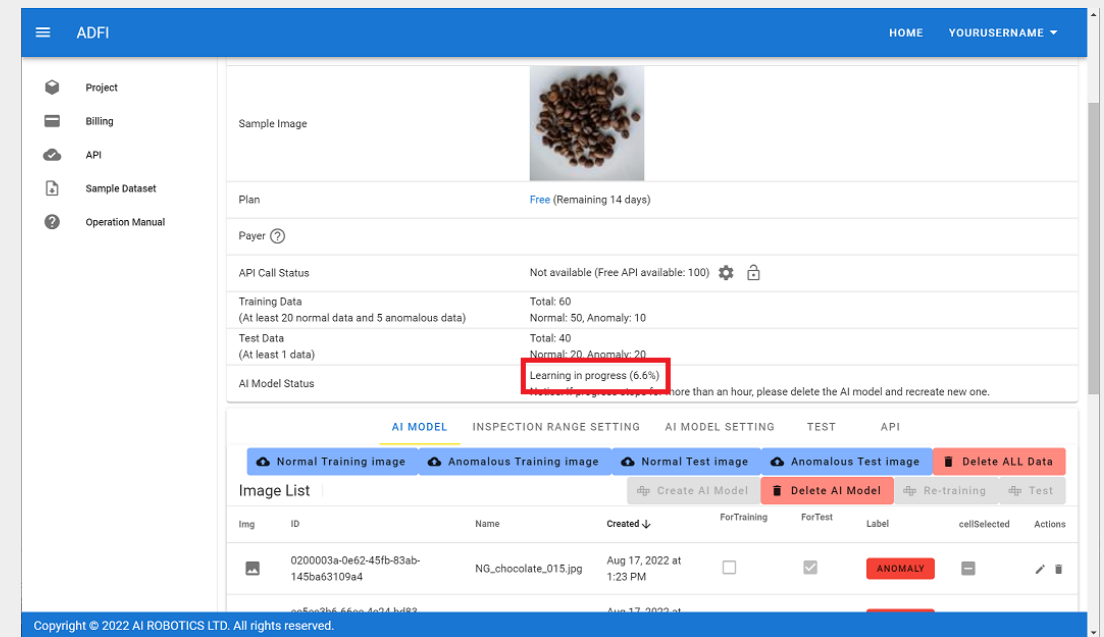
AI MODEL INSPECTION RANGE SETTING AI MODEL SETTING TEST API

Normal Training image Anomalous Training image Normal Test image Anomalous Test image Delete ALL Data

Image List

| Img | ID                                   | Name                 | Created                 | ForTraining              | ForTest                             | Label   | cellSelected | Actions |
|-----|--------------------------------------|----------------------|-------------------------|--------------------------|-------------------------------------|---------|--------------|---------|
|     | 0200003a-0e62-45fb-83ab-145ba63109a4 | NG_chocolate_015.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |              |         |
|     | ec9ac3b6-60ee-4c24-bd83-c2796b4001a  | NG_chocolate_014.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |              |         |

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ADF I

HOME YOURUSERNAME

Project  
Billing  
API  
Sample Dataset  
Operation Manual

Sample Image

Plan: Free (Remaining 14 days)

Payer

API Call Status: Not available (Free API available: 100)

Training Data (At least 20 normal data and 5 anomalous data): Total: 60, Normal: 50, Anomaly: 10

Test Data (At least 1 data): Total: 40, Normal: 20, Anomaly: 20

AI Model Status: Learning in progress (6.6%)

AI MODEL INSPECTION RANGE SETTING AI MODEL SETTING TEST API

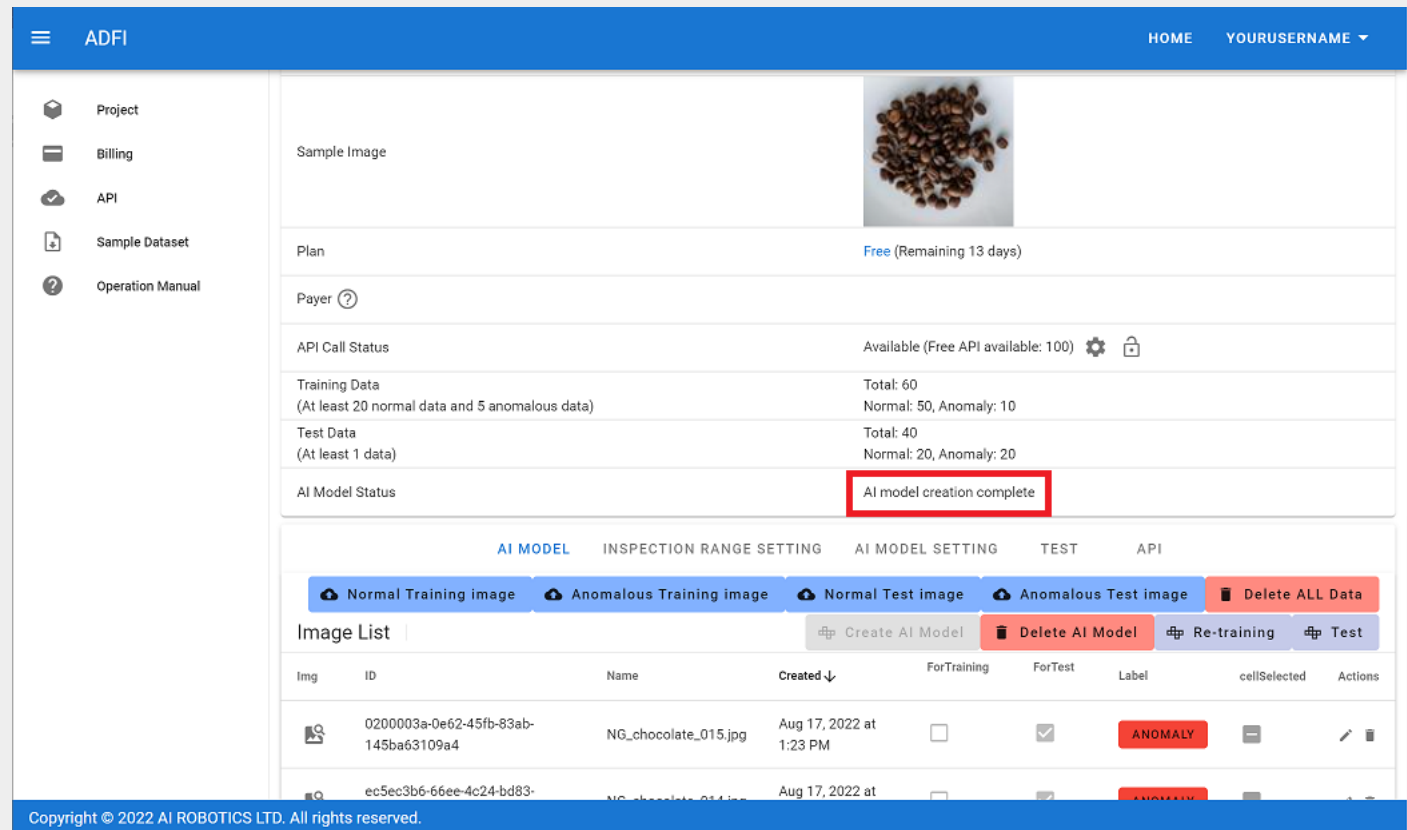
Normal Training image Anomalous Training image Normal Test image Anomalous Test image Delete ALL Data

Image List

| Img | ID                                   | Name                 | Created                 | ForTraining              | ForTest                             | Label   | cellSelected | Actions |
|-----|--------------------------------------|----------------------|-------------------------|--------------------------|-------------------------------------|---------|--------------|---------|
|     | 0200003a-0e62-45fb-83ab-145ba63109a4 | NG_chocolate_015.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY |              |         |

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- AIの学習が完了すると「AI Model Status」に「AI model creation complete」と表示されます。
- これで画像検査AIが作成されました。



The screenshot displays the ADFI web application interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOURUSERNAME'. The left sidebar contains navigation items: 'Project', 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area shows the 'AI Model Status' page. At the top, there is a 'Sample Image' of coffee beans. Below this, a table lists various metrics:

| Metric                                                       | Value                                |
|--------------------------------------------------------------|--------------------------------------|
| Plan                                                         | Free (Remaining 13 days)             |
| Payer                                                        | ?                                    |
| API Call Status                                              | Available (Free API available: 100)  |
| Training Data (At least 20 normal data and 5 anomalous data) | Total: 60<br>Normal: 50, Anomaly: 10 |
| Test Data (At least 1 data)                                  | Total: 40<br>Normal: 20, Anomaly: 20 |
| AI Model Status                                              | AI model creation complete           |

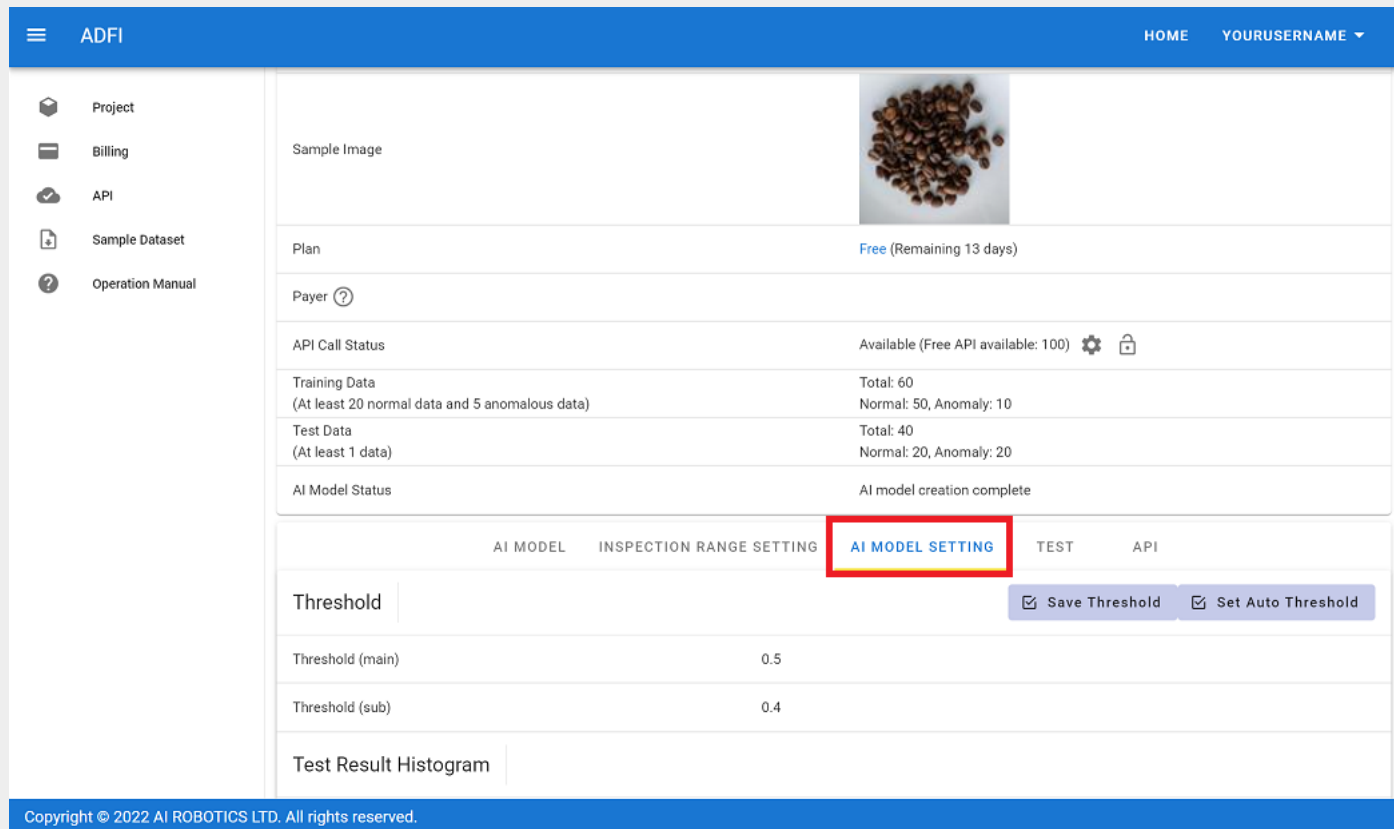
Below the table, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. The 'AI MODEL' tab is active, showing buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. Below these buttons is an 'Image List' table with columns: 'Img', 'ID', 'Name', 'Created', 'ForTraining', 'ForTest', 'Label', 'cellSelected', and 'Actions'.

| Img                                                                                 | ID                                   | Name                 | Created                 | ForTraining              | ForTest                             | Label   | cellSelected             | Actions                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|--------------------------------------|----------------------|-------------------------|--------------------------|-------------------------------------|---------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 0200003a-0e62-45fb-83ab-145ba63109a4 | NG_chocolate_015.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |   |
|  | ec5ec3b6-66ee-4c24-bd83-             | NG_chocolate_015.jpg | Aug 17, 2022 at         | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |   |

At the bottom of the interface, there is a copyright notice: 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

## 4. AIの性能検証

- AIの作成完了後（「AI Model Status」が「AI model creation complete」の時）は、先ほど検証用に登録した画像を使って、AIの性能を検証することができます。
- まず、「AI MODEL SETTING」タブを押してください。ここでは、AIの判定しきい値の変更や、検証用画像に対する判定スコアのヒストグラムを確認することができます。

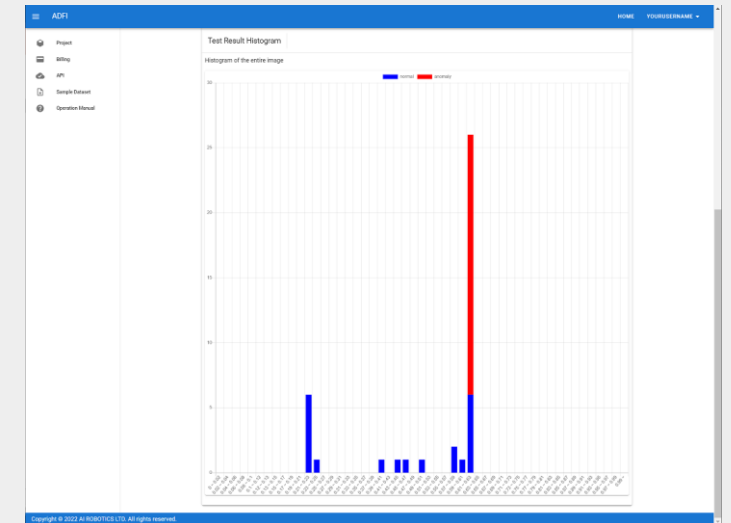


The screenshot shows the ADFI web interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOUR USERNAME'. A left sidebar contains navigation items: 'Project', 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area displays the 'AI MODEL SETTING' tab, which is highlighted with a red box. This tab shows a 'Sample Image' of coffee beans, a 'Plan' status of 'Free (Remaining 13 days)', and a table of training and test data. The 'AI Model Status' is 'AI model creation complete'. Below this, there are tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING' (active), 'TEST', and 'API'. The 'AI MODEL SETTING' section includes a 'Threshold' section with 'Save Threshold' and 'Set Auto Threshold' buttons, and a 'Test Result Histogram' section.

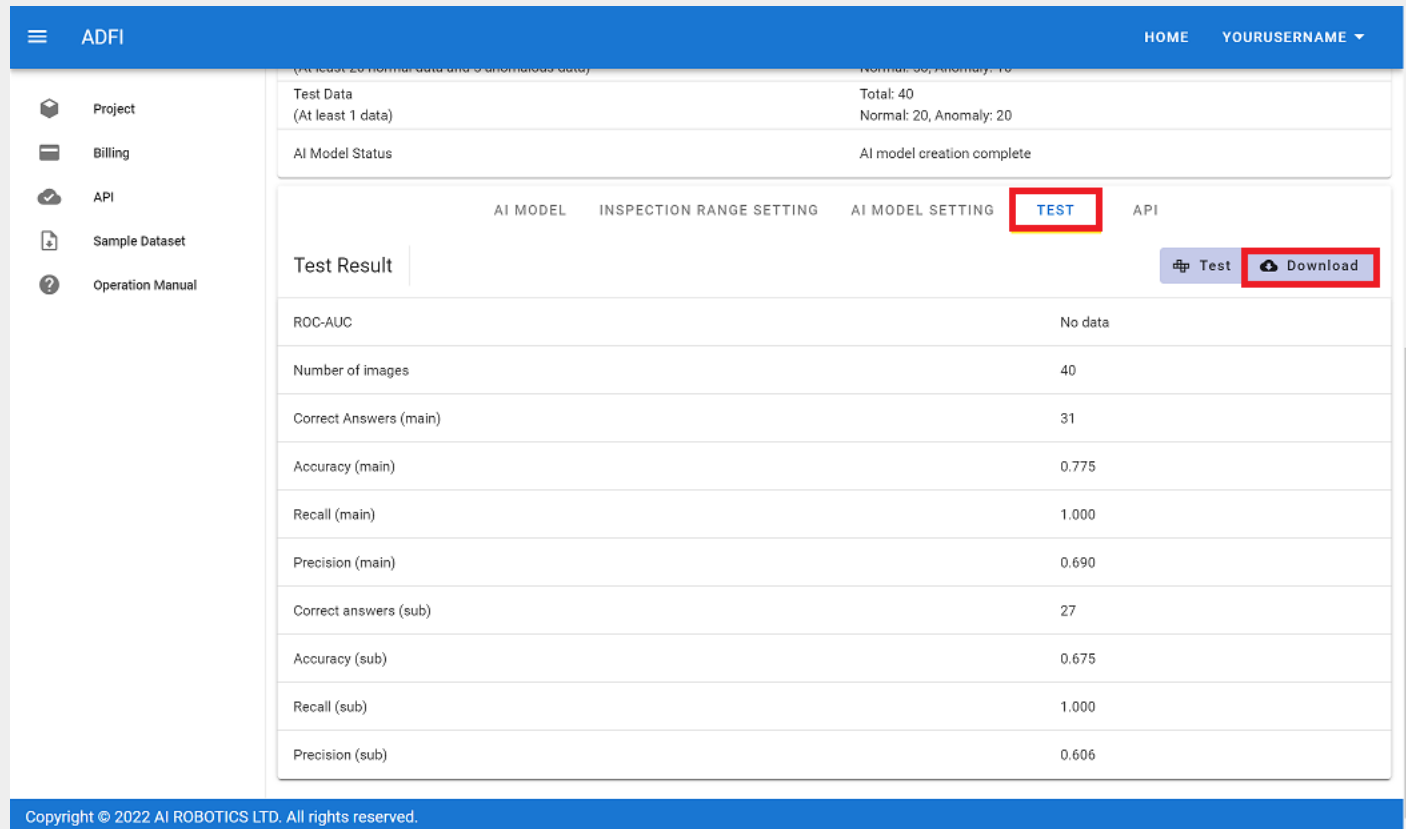
| Item                                                         | Value                                |
|--------------------------------------------------------------|--------------------------------------|
| Plan                                                         | Free (Remaining 13 days)             |
| Payer                                                        | ?                                    |
| API Call Status                                              | Available (Free API available: 100)  |
| Training Data (At least 20 normal data and 5 anomalous data) | Total: 60<br>Normal: 50, Anomaly: 10 |
| Test Data (At least 1 data)                                  | Total: 40<br>Normal: 20, Anomaly: 20 |
| AI Model Status                                              | AI model creation complete           |

| Threshold        | Value |
|------------------|-------|
| Threshold (main) | 0.5   |
| Threshold (sub)  | 0.4   |

ヒストグラム



- 「TEST」タブを押してください。現在のしきい値（デフォルトのしきい値）でのAIの検証結果の概要が表示されます。
- 「Download」ボタンを押すと、詳細情報（画像ごとのAIでの判定結果リスト）のCSVファイルをダウンロードすることができます。

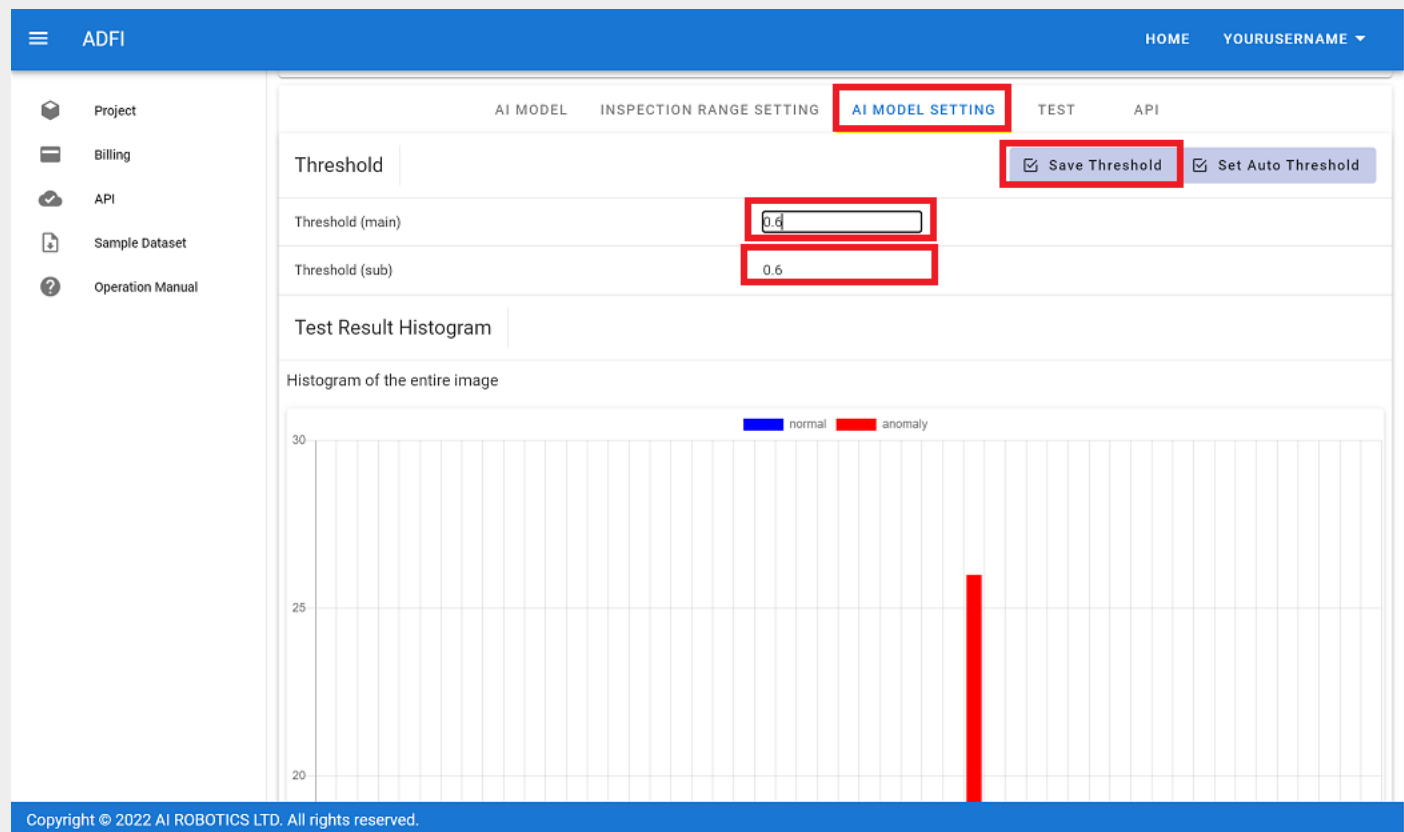


The screenshot shows the ADFI web interface. The top navigation bar is blue with the ADFI logo, a hamburger menu, and links for HOME and YOURUSERNAME. The left sidebar contains icons and labels for Project, Billing, API, Sample Dataset, and Operation Manual. The main content area has a header with tabs: AI MODEL, INSPECTION RANGE SETTING, AI MODEL SETTING, TEST (highlighted with a red box), and API. Below the tabs is a 'Test Result' section with a 'Test' button and a 'Download' button (highlighted with a red box). A table displays the test results.

| (At least 20 normal data and 5 anomalous data) |         | Normal: 20, Anomaly: 10              |
|------------------------------------------------|---------|--------------------------------------|
| Test Data<br>(At least 1 data)                 |         | Total: 40<br>Normal: 20, Anomaly: 20 |
| AI Model Status                                |         | AI model creation complete           |
| Test Result                                    |         |                                      |
| ROC-AUC                                        | No data |                                      |
| Number of images                               | 40      |                                      |
| Correct Answers (main)                         | 31      |                                      |
| Accuracy (main)                                | 0.775   |                                      |
| Recall (main)                                  | 1.000   |                                      |
| Precision (main)                               | 0.690   |                                      |
| Correct answers (sub)                          | 27      |                                      |
| Accuracy (sub)                                 | 0.675   |                                      |
| Recall (sub)                                   | 1.000   |                                      |
| Precision (sub)                                | 0.606   |                                      |

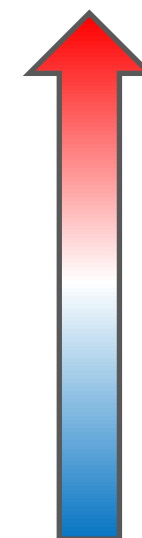
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- 再び「AI MODEL SETTING」タブを押してください。先ほどダウンロードしたCSVファイルや下段のヒストグラムを参考にして、しきい値を任意の値に変更します。2つのしきい値（「main」、「sub」）を設定することができます。
- 値を入力後、「Save Threshold」ボタンを押すと、入力した値がしきい値に反映されます。



## 2つのしきい値の活用方法

判定スコア高



Anomaly (異常)

← mainしきい値

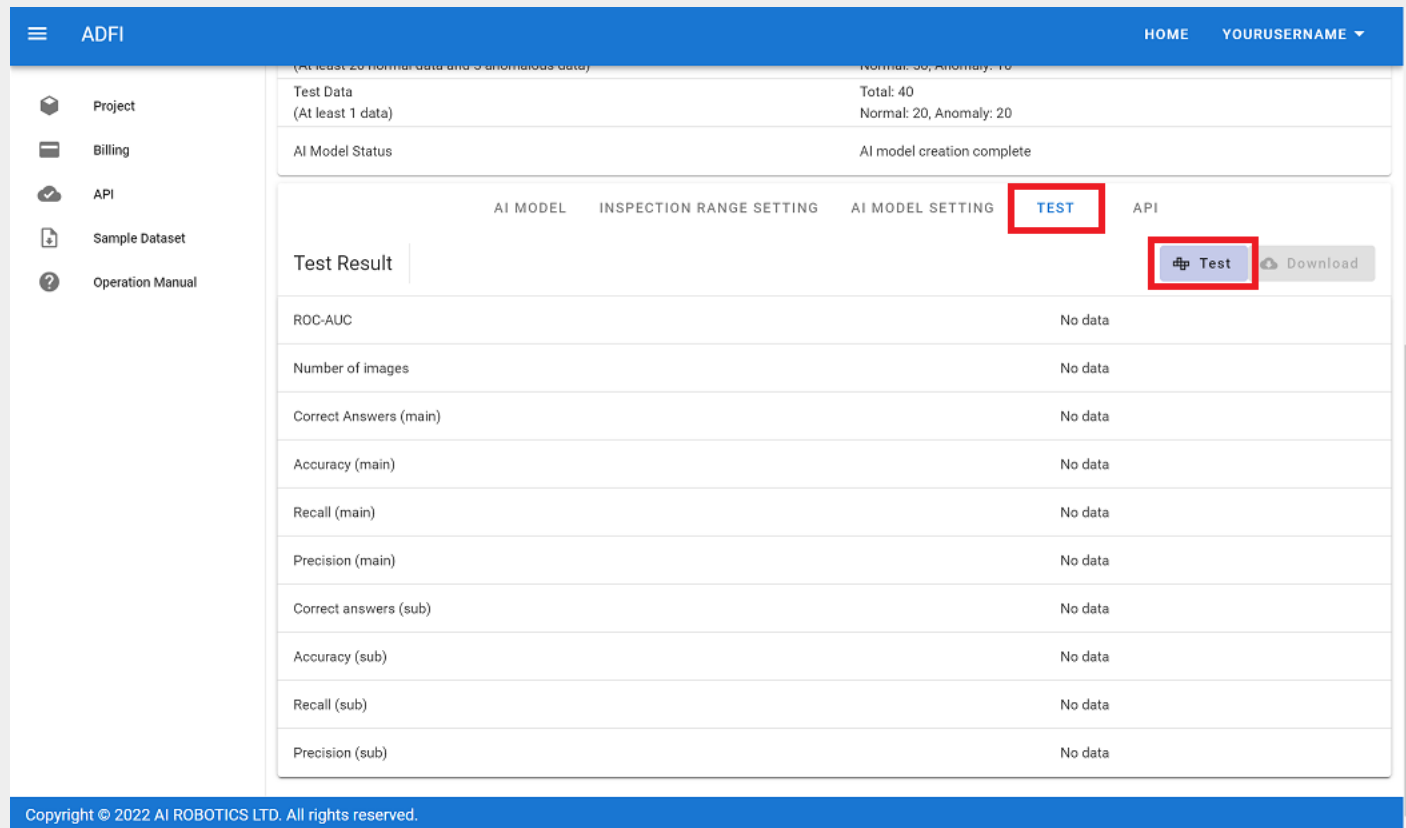
Not Clear (グレーゾーン)

← subしきい値

Normal (正常)

判定スコア低

- 「TEST」タブを押してください。しきい値を変更したため、AIの検証結果が「No data」になっています。
- 右側の「TEST」ボタンを押すと、変更後のしきい値で、再度AIの検証が実行されます。

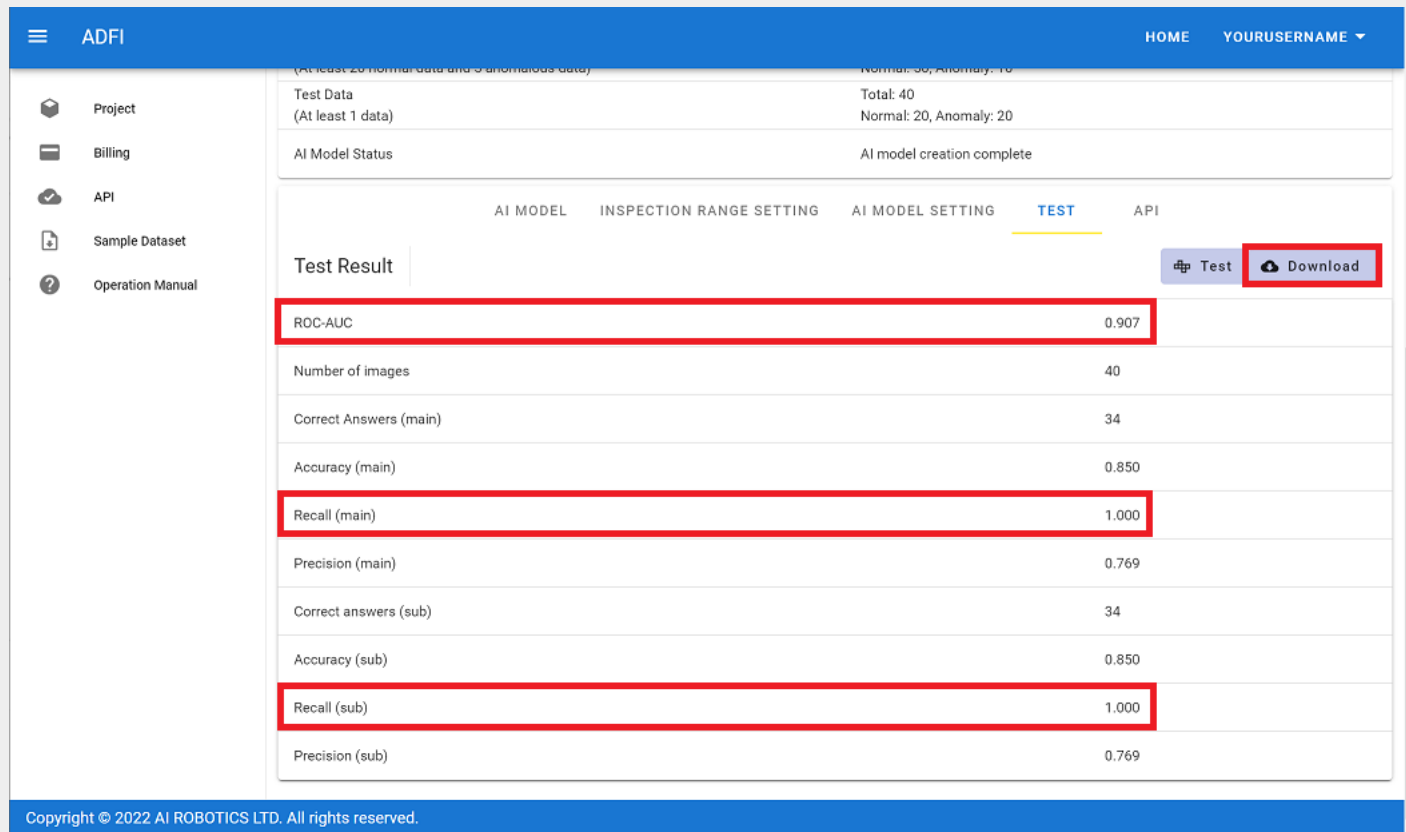


The screenshot displays the ADFI web application interface. The top navigation bar is blue with the ADFI logo on the left and 'HOME' and 'YOUR USERNAME' on the right. A left sidebar contains icons and labels for 'Project', 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area has a sub-header with tabs: 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST' (highlighted with a red box), and 'API'. Below the tabs, the 'Test Result' section is visible, featuring a 'Test' button (highlighted with a red box) and a 'Download' button. A table below the button shows various performance metrics, all of which are 'No data'.

| Test Result            |         |
|------------------------|---------|
| ROC-AUC                | No data |
| Number of images       | No data |
| Correct Answers (main) | No data |
| Accuracy (main)        | No data |
| Recall (main)          | No data |
| Precision (main)       | No data |
| Correct answers (sub)  | No data |
| Accuracy (sub)         | No data |
| Recall (sub)           | No data |
| Precision (sub)        | No data |

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- しきい値を変更後のAIの検証結果が表示されます。特に、ROC-AUCとRecallが重要です。
  - ROC-AUC : AIの判別性能の値 (1.0が最高値)
  - Accuracy : 正解率
  - Recall : 再現率 (1.0の場合、異常の見逃しがゼロ)
- 右側の「Download」ボタンを押すと、変更後のしきい値のCSVファイルをダウンロードできます。

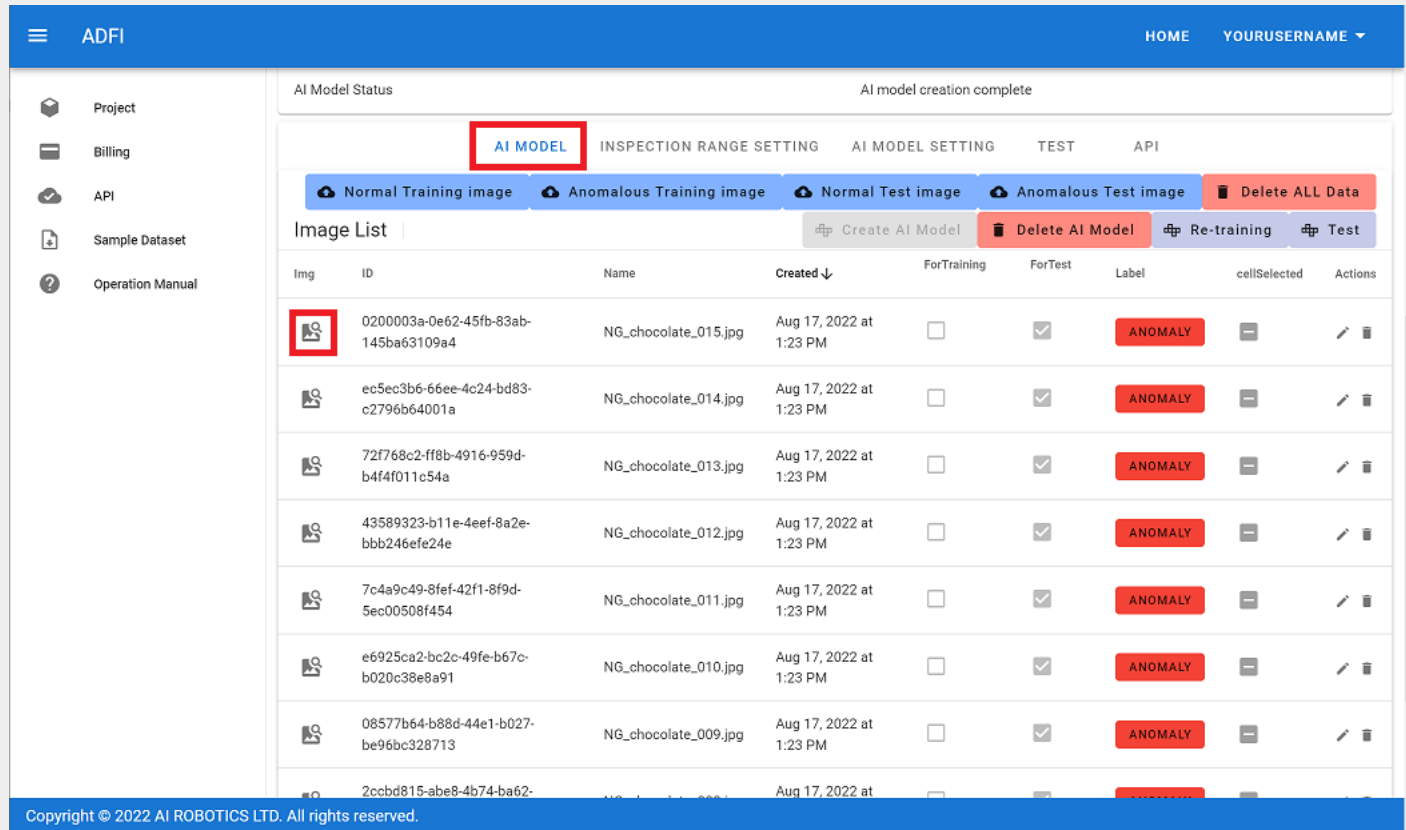


The screenshot shows the ADFI web interface. The left sidebar contains navigation links: Project, Billing, API, Sample Dataset, and Operation Manual. The main content area has tabs for AI MODEL, INSPECTION RANGE SETTING, AI MODEL SETTING, TEST (selected), and API. The TEST tab displays the 'Test Result' section. At the top right of this section are 'Test' and 'Download' buttons. The 'Download' button is highlighted with a red box. Below the buttons is a table of performance metrics. The following rows are highlighted with red boxes: ROC-AUC (0.907), Recall (main) (1.000), and Recall (sub) (1.000).

| Metric                 | Value |
|------------------------|-------|
| ROC-AUC                | 0.907 |
| Number of images       | 40    |
| Correct Answers (main) | 34    |
| Accuracy (main)        | 0.850 |
| Recall (main)          | 1.000 |
| Precision (main)       | 0.769 |
| Correct answers (sub)  | 34    |
| Accuracy (sub)         | 0.850 |
| Recall (sub)           | 1.000 |
| Precision (sub)        | 0.769 |

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- 各画像のヒートマップを表示します。
- 「AI MODEL」タブで、検証用の異常画像（「ForTest」がチェックマーク、かつ、「Label」が「ANOMALY」）の左側のアイコンを押してください。

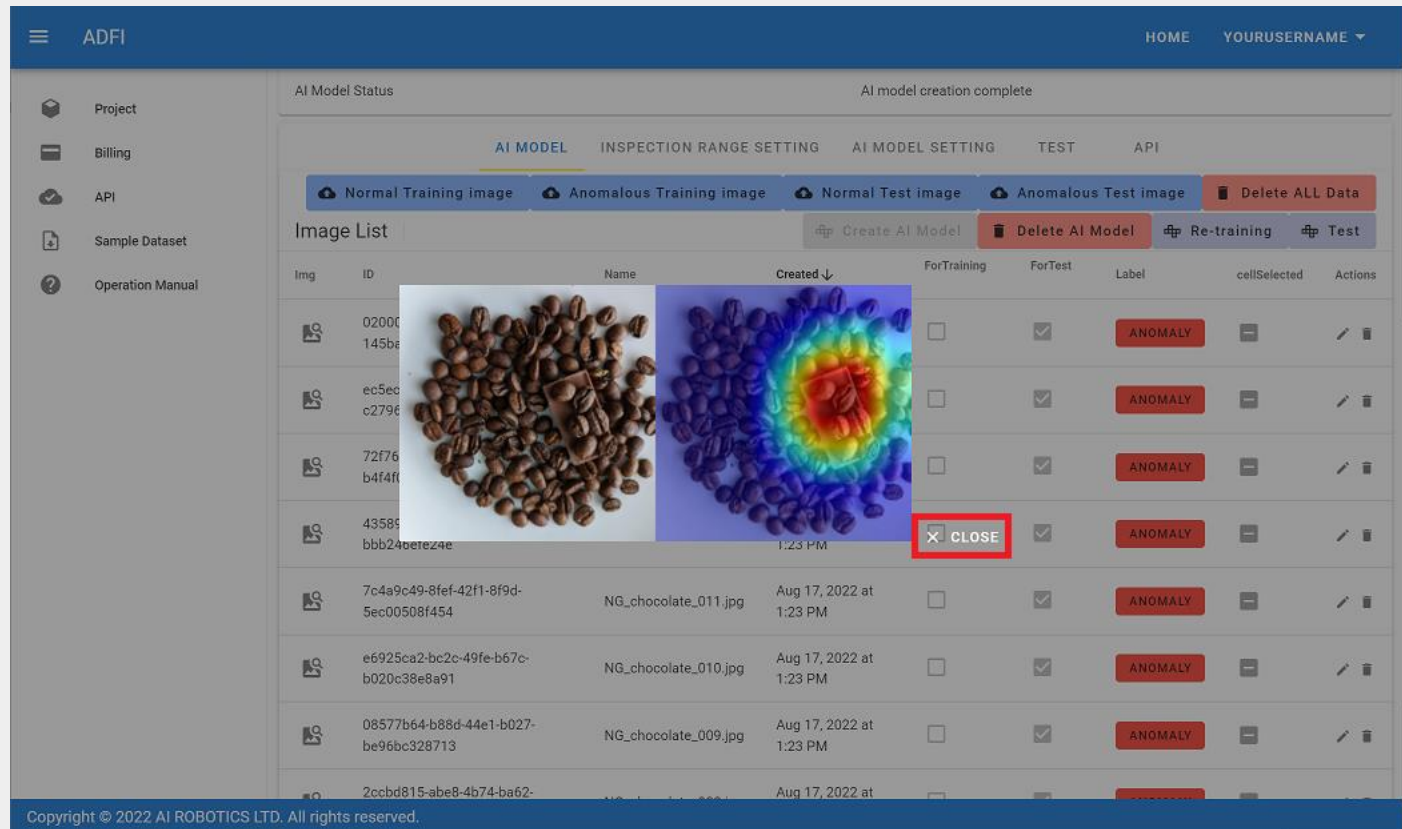


The screenshot displays the ADFI web interface. The top navigation bar includes a menu icon, the text 'ADFI', and links for 'HOME' and 'YOURUSERNAME'. The left sidebar contains a 'Project' section with links to 'Project', 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area is titled 'AI Model Status' and 'AI model creation complete'. It features a tabbed interface with 'AI MODEL' selected and highlighted by a red box. Other tabs include 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. Below the tabs are buttons for 'Normal Training image', 'Anomalous Training image', 'Normal Test image', 'Anomalous Test image', and 'Delete ALL Data'. The 'Image List' section contains a table with columns: 'Img', 'ID', 'Name', 'Created', 'ForTraining', 'ForTest', 'Label', 'cellSelected', and 'Actions'. The first row of the table is highlighted with a red box around the 'Img' icon. The table lists several chocolate images, all labeled 'ANOMALY' and marked for testing.

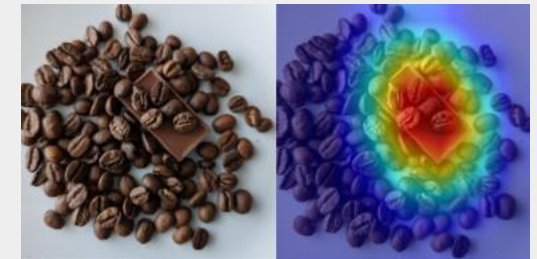
| Img                                                                                 | ID                                   | Name                 | Created                 | ForTraining              | ForTest                             | Label   | cellSelected             | Actions                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|--------------------------------------|----------------------|-------------------------|--------------------------|-------------------------------------|---------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 0200003a-0e62-45fb-83ab-145ba63109a4 | NG_chocolate_015.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |       |
|    | ec5ec3b6-66ee-4c24-bd83-c2796b64001a | NG_chocolate_014.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |       |
|    | 72f768c2-ff8b-4916-959d-b4f4f011c54a | NG_chocolate_013.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |       |
|  | 43589323-b11e-4eef-8a2e-bbb246efe24e | NG_chocolate_012.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |   |
|  | 7c4a9c49-8fef-42f1-8f9d-5ec00508f454 | NG_chocolate_011.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |   |
|  | e6925ca2-bc2c-49fe-b67c-b020c38e8a91 | NG_chocolate_010.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |   |
|  | 08577b64-b88d-44e1-b027-be96bc328713 | NG_chocolate_009.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |   |
|  | 2ccbd815-abe8-4b74-ba62-             | NG_chocolate_008.jpg | Aug 17, 2022 at 1:23 PM | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ANOMALY | <input type="checkbox"/> |   |

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- 作成したAIで検査したヒートマップが表示されます。
  - 赤い領域は、注目領域です。AIが異常と判定する際に注目した領域を表しています。
  - 正常画像の場合は、異常箇所が存在しないため、注目領域が集中せずに薄く全体に広がります。
- 確認後、右下の「CLOSE」を押してください。



異常の場合

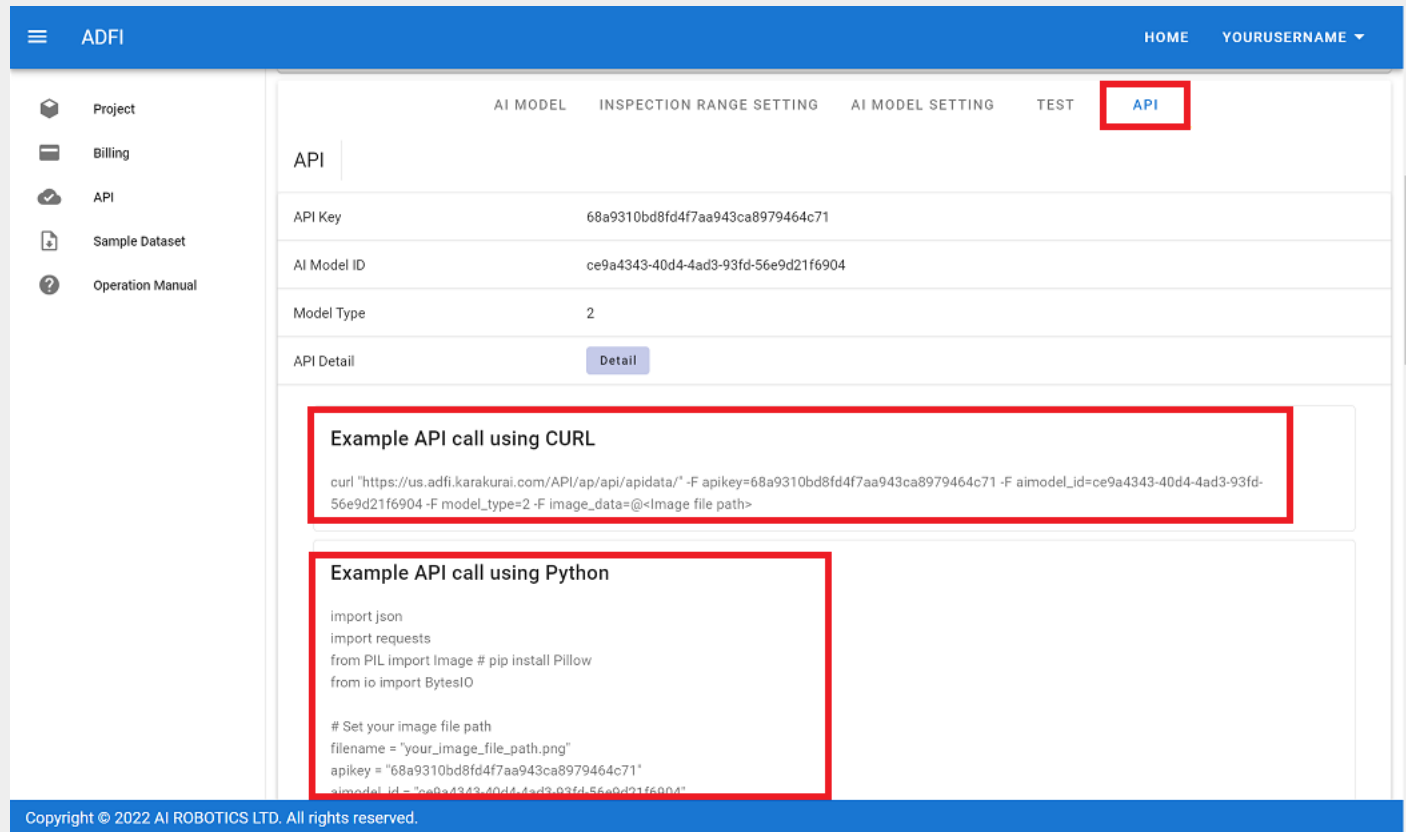


正常の場合



## 5. 参考情報

- ADFIでは、外部システムからAIを利用できるようにAPIを提供しています。
- 「API」タブを押してください。下段にAPI呼び出しのサンプルコードが表示されます。
  - 無料プランの場合、API利用回数に上限があります。



The screenshot displays the ADFI web application interface. The top navigation bar is blue with a hamburger menu icon, the text 'ADFI', and links for 'HOME' and 'YOURUSERNAME'. The left sidebar contains a list of menu items: 'Project', 'Billing', 'API', 'Sample Dataset', and 'Operation Manual'. The main content area has a sub-navigation bar with tabs for 'AI MODEL', 'INSPECTION RANGE SETTING', 'AI MODEL SETTING', 'TEST', and 'API'. The 'API' tab is selected and highlighted with a red box. Below the tabs, the 'API' section displays a table with the following information:

|             |                                      |
|-------------|--------------------------------------|
| API Key     | 68a9310bd8fd4f7aa943ca8979464c71     |
| AI Model ID | ce9a4343-40d4-4ad3-93fd-56e9d21f6904 |
| Model Type  | 2                                    |

Below the table, there is a section titled 'API Detail' with a 'Detail' button. Two example API call snippets are provided, each enclosed in a red box:

**Example API call using CURL**

```
curl "https://us.adfi.karakurai.com/API/ap/api/apidata/" -F apikey=68a9310bd8fd4f7aa943ca8979464c71 -F aimodel_id=ce9a4343-40d4-4ad3-93fd-56e9d21f6904 -F model_type=2 -F image_data=@<Image file path>
```

**Example API call using Python**

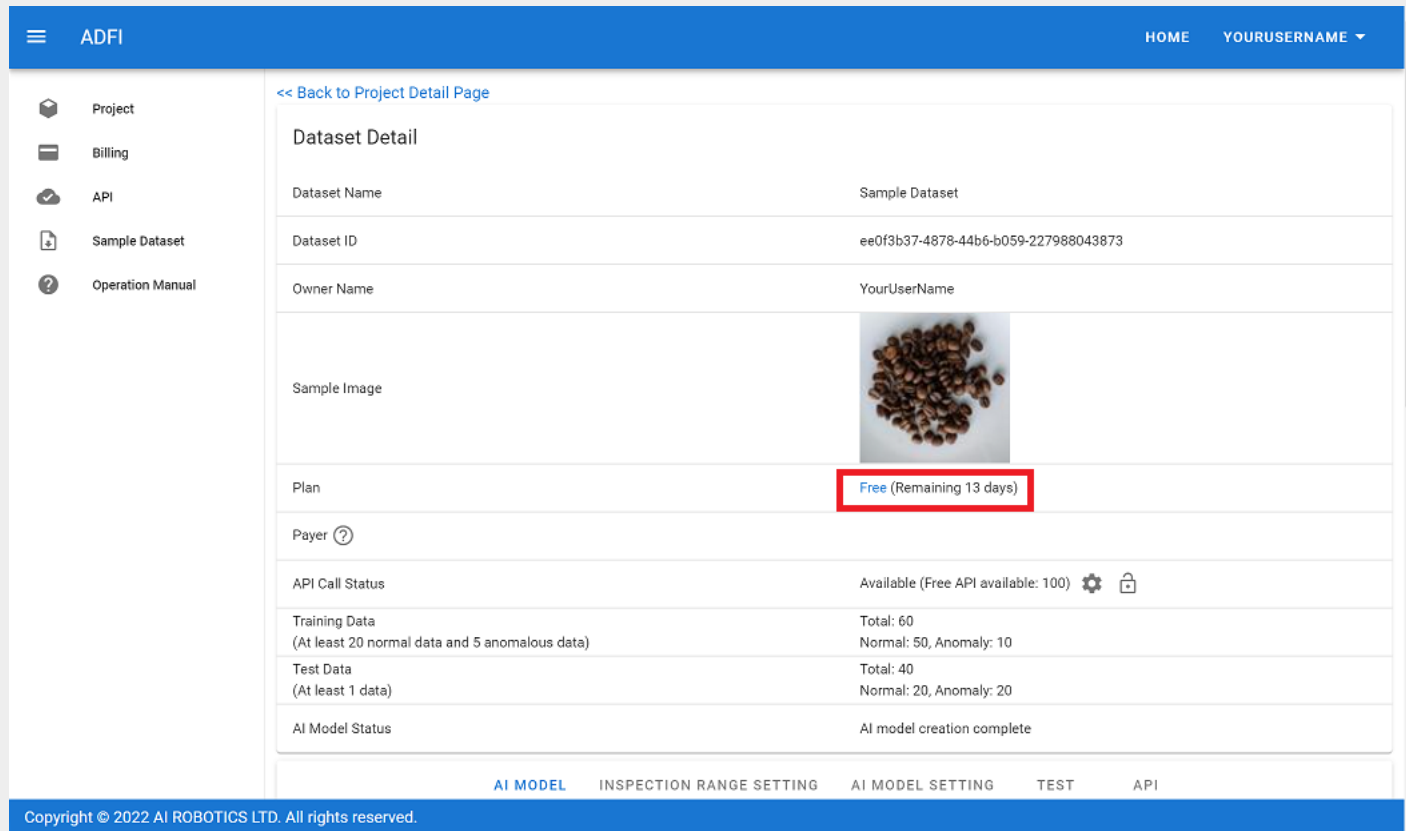
```
import json
import requests
from PIL import Image # pip install Pillow
from io import BytesIO

# Set your image file path
filename = "your_image_file_path.png"
apikey = "68a9310bd8fd4f7aa943ca8979464c71"
aimodel_id = "ce9a4343-40d4-4ad3-93fd-56e9d21f6904"
```

At the bottom of the page, a blue footer contains the text: 'Copyright © 2022 AI ROBOTICS LTD. All rights reserved.'

# 有料プランへの変更

- ADFIのFreeプランでは、無料体験期限にデータセットの情報が自動で削除されます。
  - 「Remaining • days」が無料体験可能な残り日数です。データセットごとに日数が設定されています。
- 外部システムから利用する場合は、「Plan」の項目の「Free」を押して、データセットを有料プランに変更してください。（有料プランへの変更にはクレジットカードの登録が必要です。）



ADF I HOME YOURUSERNAME

<< Back to Project Detail Page

### Dataset Detail

|                                                                 |                                                                                      |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Dataset Name                                                    | Sample Dataset                                                                       |
| Dataset ID                                                      | ee0f3b37-4878-44b6-b059-227988043873                                                 |
| Owner Name                                                      | YourUserName                                                                         |
| Sample Image                                                    |  |
| Plan                                                            | Free (Remaining 13 days)                                                             |
| Payer ?                                                         |                                                                                      |
| API Call Status                                                 | Available (Free API available: 100) ⚙️ 🔒                                             |
| Training Data<br>(At least 20 normal data and 5 anomalous data) | Total: 60<br>Normal: 50, Anomaly: 10                                                 |
| Test Data<br>(At least 1 data)                                  | Total: 40<br>Normal: 20, Anomaly: 20                                                 |
| AI Model Status                                                 | AI model creation complete                                                           |

AI MODEL INSPECTION RANGE SETTING AI MODEL SETTING TEST API

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- ADFIの操作や外部システムからのAI利用の詳細については、操作マニュアルを参照ください。
- 操作マニュアル : <https://adfi.jp/ja/manual/>