

ADVISE: ADaptive Feature Relevance and VISual Explanations for Convolutional Neural Networks

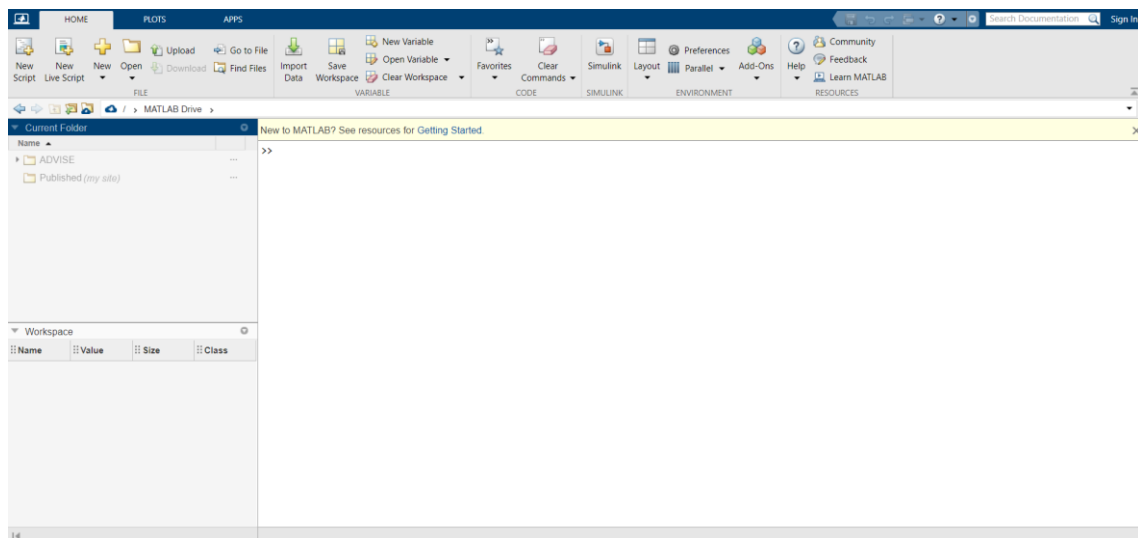
This document contains instructions for running the **CVPR#9213** paper's code. This code was developed using MATLAB R2021a.



You can run this code in two ways:

MATLAB Online

If you want to run the code using the online version of MATLAB, you just need to follow these steps:

1. In your browser, type in the following address:
 - <https://matlab.mathworks.com/>
2. To sign in, you will be asked for your username and password.
3. If you do not already have an account, you can sign up using your academic email address. The following link has all of the necessary information for signing up:
 - <https://www.mathworks.com/products/matlab-online.html>
4. When you enter the environment, you will see the screen below.



5. Please click the **New** button  on the **HOME** tab to create a new Folder with an arbitrary name.
6. Double-click on the Folder to open it. Then, click **Upload**  to upload all of the scripts that are included in the supplementary materials.
7. You must also create another folder with the name of '**Images**'. Then, double-click on this folder and upload the provided sample images or any other image(s) on which you want to test ADVISE.
8. Double-click on the '**imMain.m**' script to open it. In line 22, you can set the variable `net` to one of the following values {alexnet, vgg16, resnet50, xception}

```
net = alexnet;
```

9. In line 61, we set the `displayFlag` variable to 1 to compare the results of ADVISE with Grad-CAM and LIME. However, the additional processing for visualising Grad-CAM and LIME increases the script's computational cost. Set the value to 0 if you simply want to see the results of ADVISE.

```
displayFlag = 0;
```

10. Pressing **F5** or clicking the **Run** button in the **EDITOR** tab executes the code and displays the results.

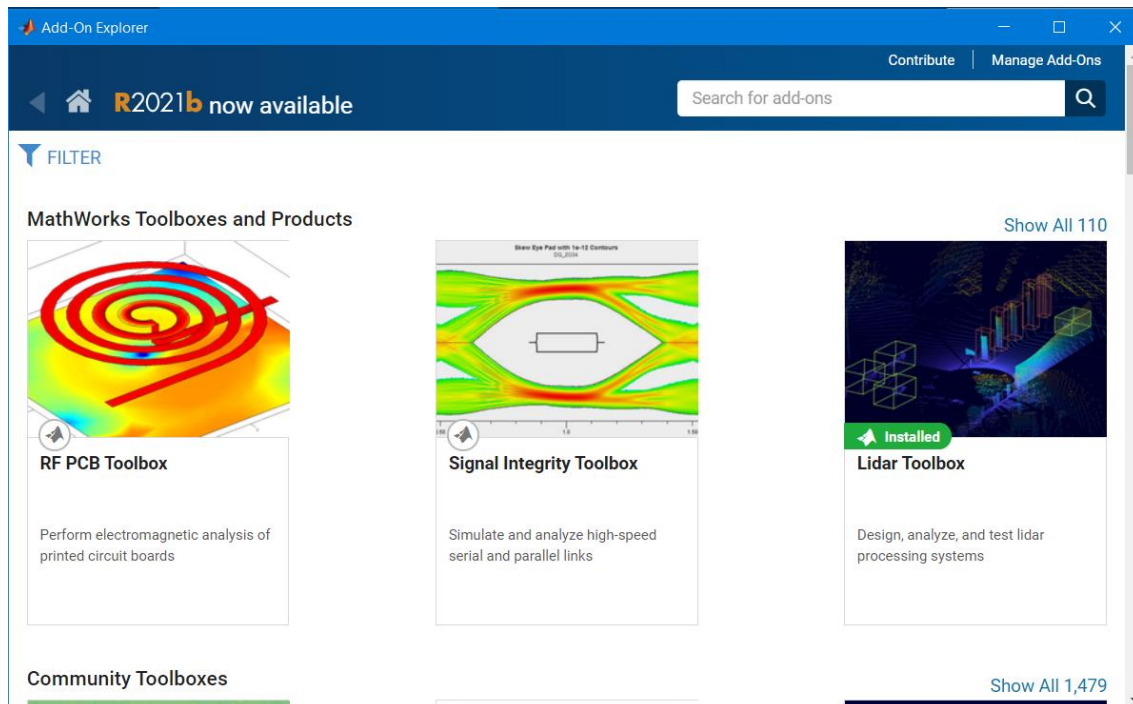
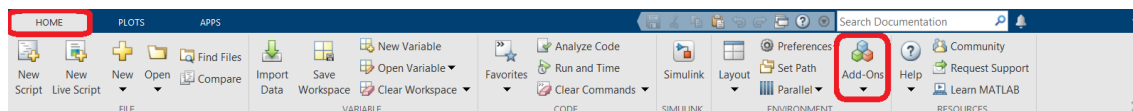
MATLAB on PC

If you want to run the code using the installed version of MATLAB on your computer, you need to go through the following steps:

1. You must install the following toolboxes if you have not already done so:

- Statistics and Machine Learning Toolbox
- Deep Learning Toolbox
- Computer Vision Toolbox
- Image Processing Toolbox
- Signal Processing Toolbox

- 1.1. To install the required toolboxes, go to the **HOME** tab and click the **Add-Ons** button, as shown in the figure below.



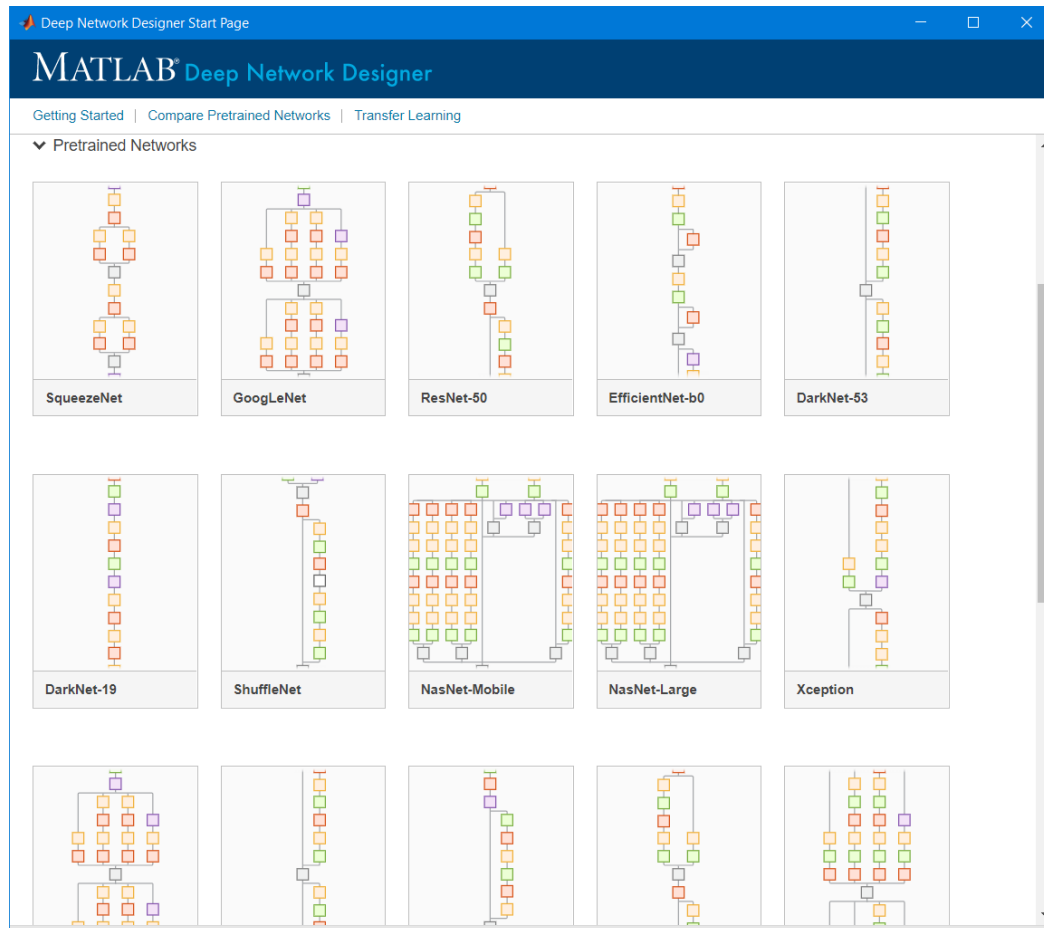
- 1.2. For more details, please visit the following link:

https://www.mathworks.com/help/matlab/matlab_env/get-add-ons.html

2. Open the '**RUNmeFIRST.m**' script by double-clicking on it. To run the script, press **F5** or click the **Run** button on the **EDITOR** tab, as shown in the figure below. If you have not already installed {alexnet, vgg16, resnet50, xception}, click on the name of the network and press **install**. In this way, you can download the architecture and associated weights. After installing the pretrained models, you can close the *Deep Network Designer* tool. Please see the following links for more details:

<https://www.mathworks.com/help/deeplearning/ref/deepnetworkdesigner-app.html>

<https://www.mathworks.com/help/deeplearning/ref/vgg16.html>



3. Double-click on the '**imMain.m**' script to open it. In line 22, you can set the variable `net` to one of the following values {alexnet, vgg16, resnet50, xception}

```
net = alexnet;
```
4. In line 61, we set the `displayFlag` variable to 1 to compare the results of ADVISE with Grad-CAM and LIME. However, the additional processing for visualising Grad-CAM and LIME increases the script's computational cost. Set the value to 0 if you simply want to see the results of ADVISE.

```
displayFlag = 0;
```
5. Pressing **F5** or clicking the **Run** button in the **EDITOR** tab executes the code and displays the results.