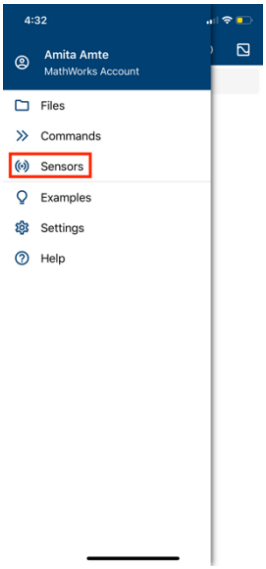
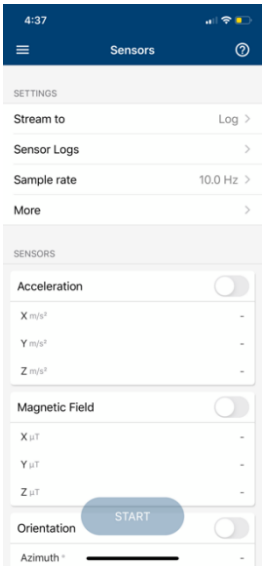
Pocket AI and IoT – WITS21

Getting Started with MATLAB Mobile on iOS

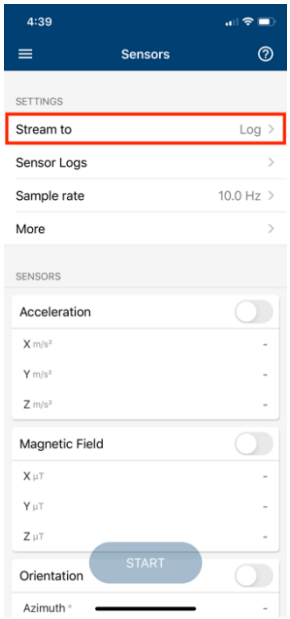
Explore the MATLAB Mobile App

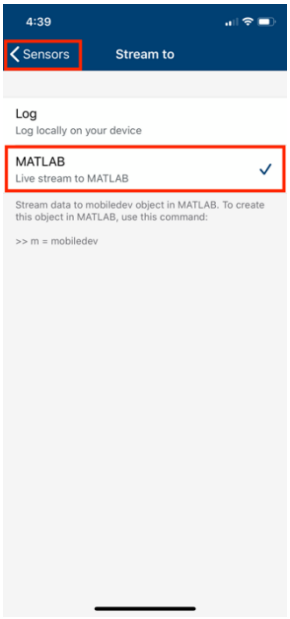
1. Open the **Sensors** pane from the drop-down menu in the top-left corner.
2. Identify the **Acceleration** sensor we will use in the workshop.

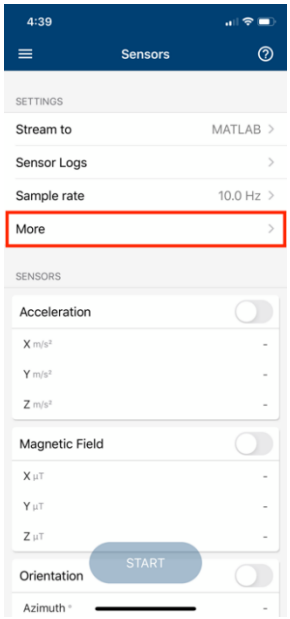


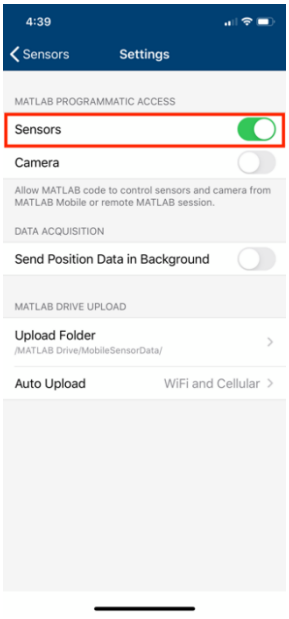


3. In order to access the sensor data, there are a couple of one-time setup steps required.
   a. Select **Stream to** and choose **MATLAB** from the options listed. Click on the **Sensors** tab on the top-left corner to return to **Sensors** menu.
   b. Select **More** to bring up the **Sensor Settings** screen. From here, allow MATLAB programmatic access to sensors by clicking the **Sensors** switch.

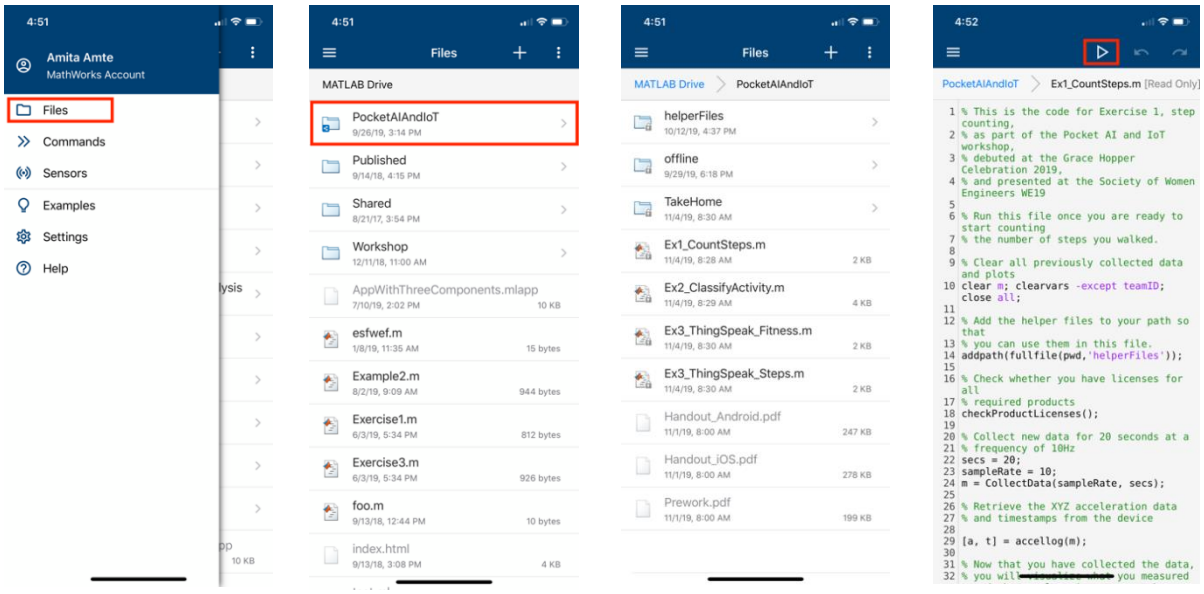








4. To execute a MATLAB script, open the .m file and run it using the triangular **Run** button. Navigate to **Files** from the drop-down in the top-left corner. The app switches to the Command Window to show the script output. Navigate back to **Files** to get back to the File Browser.



Exercise 1. Analyze acceleration data from the sensor on your device to count steps

1. Open **Ex1_CountSteps.m** and click the triangular **Run** button to execute the script. A spinning wheel labeled Evaluating appears on your screen, indicating that the script is running.
2. Press **Return** when prompted to start logging sensor data for the script to analyze.
3. Walk around the room as you normally would for **20 seconds**. The script keeps time for you.
4. View your step count in the Command Window and look at the Figure output.

Exercise 2. Analyze sensor data using machine learning to classify activities

1. Open **Ex2_ClassifyActivity.m** and click the triangular **Run** button to execute the script.
2. Press **Return** when prompted to start logging sensor data for the script to analyze.
3. Move – walk, run, stand still – around the room for **30 seconds**. The script keeps time for you.
4. View the classification results for your activity.

Exercise 3. Read and visualize aggregated data from ThingSpeak

1. Open **Ex3_ThingSpeak_Fitness.m** and click the triangular **Run** button to execute the script.
2. Enter your assigned team number and press **Return**
3. Press **Return** when prompted to start logging sensor data for the script to analyze.
4. Move – walk, run, stand still – around the room for **30 seconds**. The script keeps time for you.
5. View fitness activity from all teams.

After the Workshop

We hope that you will continue exploring sensors, AI, and IoT in your own applications! After the workshop, you'll have access to many resources for inspiration and practice. You will also have access to the technologies used during the workshop for 30 days. After that, you are welcome to sign up for a trial.

Take Home Exercises

You can find four additional exercises in the folder called **TakeHome** in the **PocketAIandIoT** workshop folder along with a script called **calorieCount**. Each exercise has instructions in the comments of the script file.

If you want to edit any files in the workshop folder, first make a copy of the workshop folder in a browser at drive.matlab.com. You have write access for the files in the copied folder.

Want to Learn More?

- Practice programming and learn more about MATLAB by taking the **MATLAB Onramp:** https://matlabacademy.mathworks.com/
- Learn about deep learning in the **Machine Learning Onramp**: https://www.mathworks.com/training-schedule/machine-learning-with-matlab
- Learn about **ThingSpeak** for IoT projects: https://thingspeak.com
- Find inspiration from our user stories: https://www.mathworks.com/company/user_stories.html
- Learn more with a MATLAB trial license: https://www.mathworks.com/campaigns/products/trials.html

Keep in Touch!

Use and follow **#PocketAIAndIoT** and **#shelovesmatlab** on Twitter, LinkedIn, Facebook, and Instagram. Contact us if you are interested in bringing this material to your organization!

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