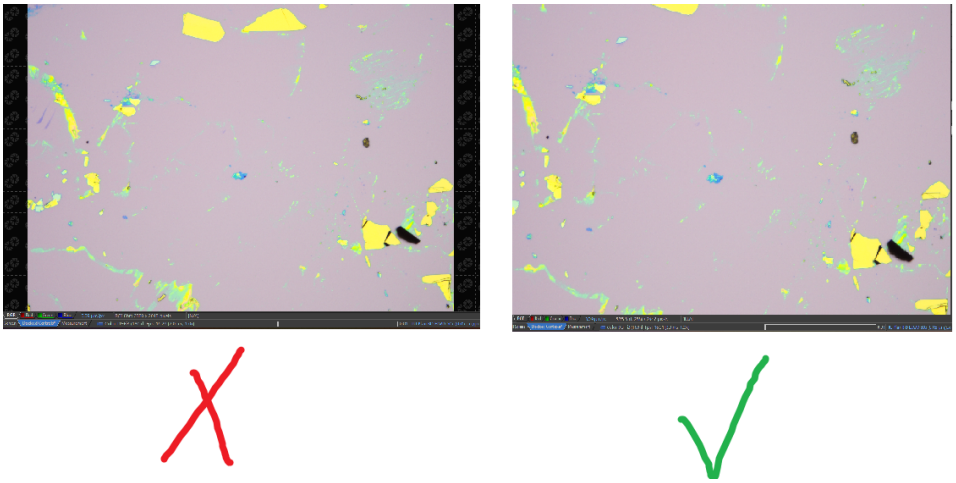
Flake search station user's manual

Note: Do not rename or delete the zlib123dllx64 folder in desktop/Tom since it's part of the onnxruntime-gpu environment

1. Software Set up:
    - X20 Magnification
    - Turn the NIS-Element imaging software on
    - Adjust brightness level and lighting
    - Focus the image
    - Press "Auto White"
    - Make sure the image is fully zoomed in with no black edges



    - Upload the corresponding script to the scanning stage, and disconnect it.
    - I recommend to set the exposure time to less than 3ms to avoid motion blur

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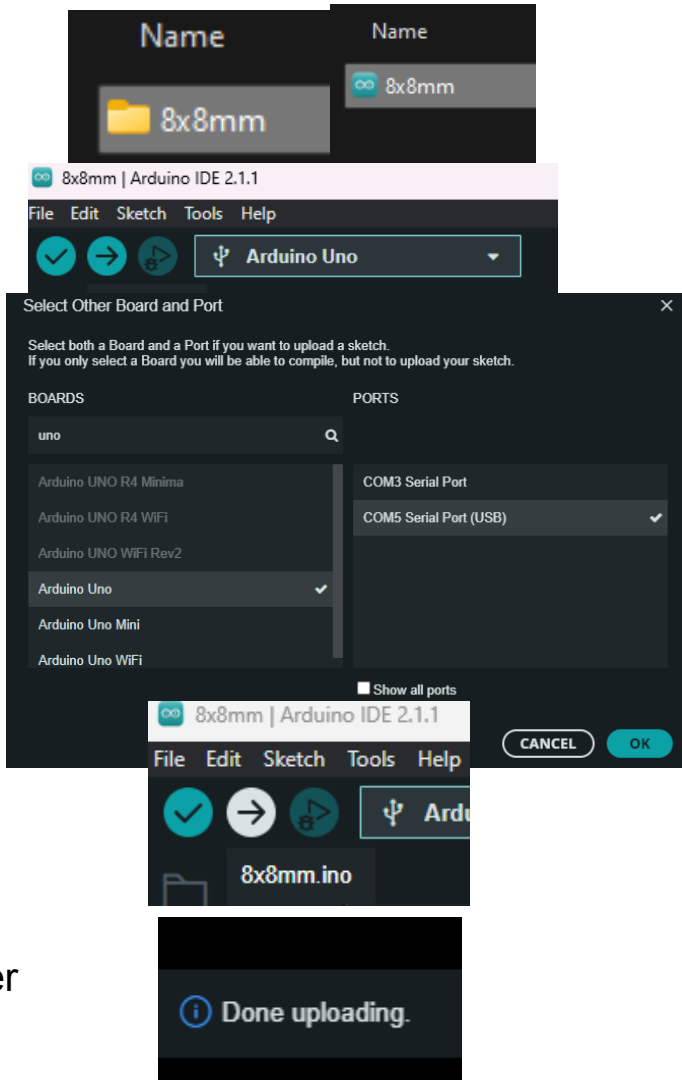
How to upload:

- Select the dimension you want
- Double click to open the INO file
- Specify the USB Port here
- You may have to specify the model and USB port manually. The board is Arduino UNO, and the port is the port with a (USB) after the name
- Upload it by pressing this button
- A “Done Uploading” notification will pop up after a few seconds
- Disconnect the board from power after uploading



2. Scanning Stage Setup
    - Connect the scanning stage to the microscope with rubber band.

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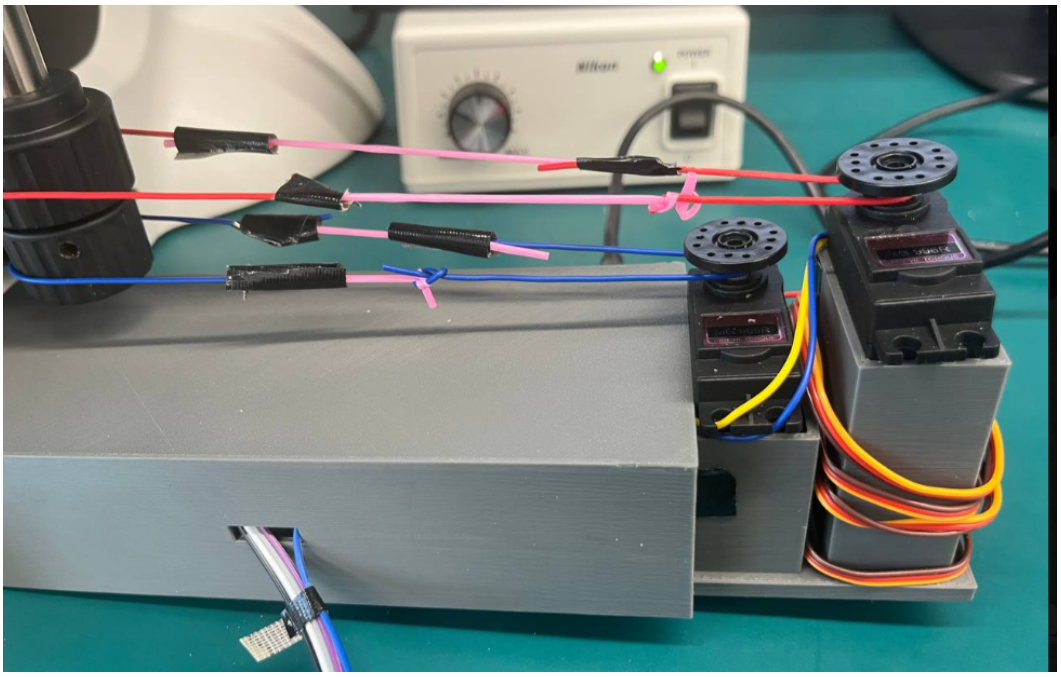
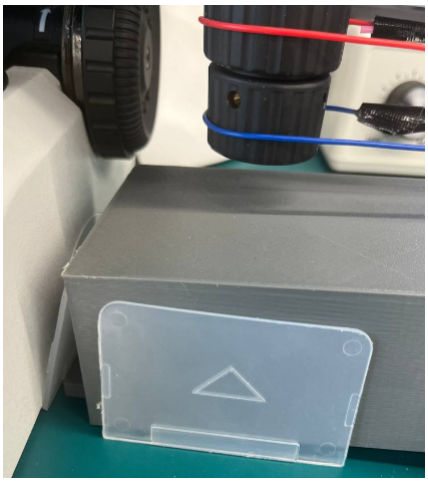
- Make sure the rubber bands have enough free space in the direction of the scan (knots should not touch the motors or the microscope stage. Note for future upgrade: Replace the connection material or “weld” them together so no knots are used)



- Put 1-2 plastic “spacers” to ensure tension, the end of the platform should be slightly in the air.
- Focus the substrate, note the start point of the scan (I recommend to start with the top right corner)



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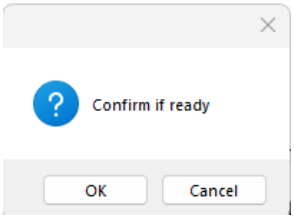
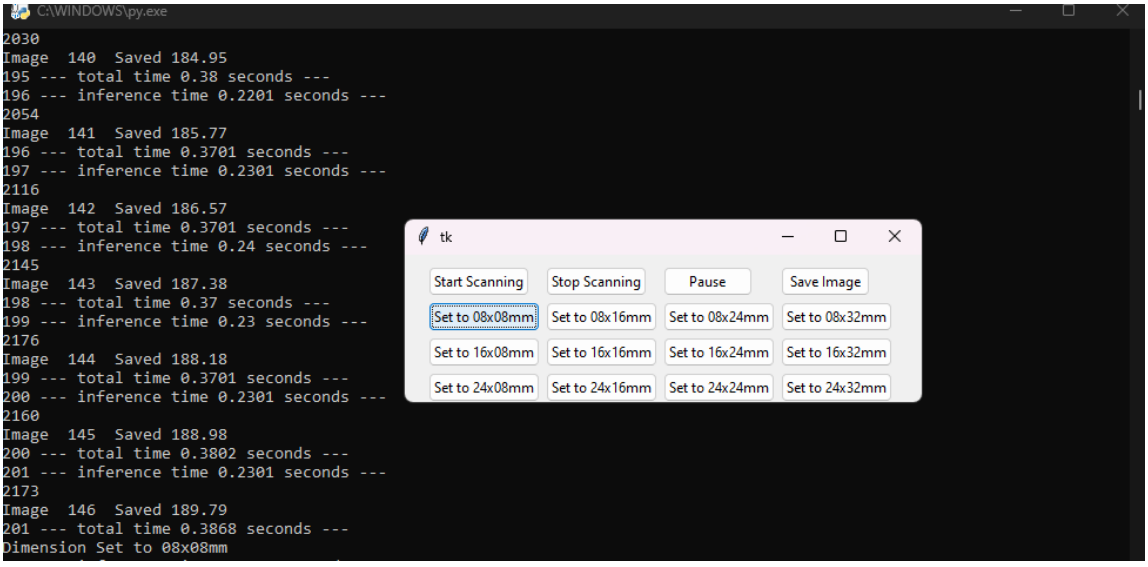
3. Scanning Script
    - Double click the "Flake Detector" script in the folder.
    - Make sure the NIS-Elements software is at the foreground with nothing blocking it
    - A "Confirm if ready" window will show, Press "Ok" once all previous settings are complete.



    - After the user interface shows up (takes ~20 seconds to start). Make sure it doesn't block the software. Specify the region of interest (default value is 8mmx8mm) by clicking the button. A message will pop up



      to confirm you've set the dimension
    - Press "Start Scanning" on the keyboard while connecting the scanning stage to power.

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- Scan will start automatically the second the stage is connect to the PC
- Press "Stop Scanning" after the scan stops. Report and images are saved automatically
- Close the py.exe window after it completes the scan.

4. Output
    - Script will stop running after pressing "Stop scanning" button
    - Saved Flake Images are in the "Flakes" folder
    - Manually Saved Images are in the directory folder
    - Image Coordinates are recorded in the "report.txt" text file in the directory folder.
    - Coordinates are with respect to the start point, the x axis points leftwards, the y axis points downwards.