**Cellpose 2.0 Guide**

### Local Installation (< 2 minutes)

System Requirements:

* Linux, Windows, and Mac OS are supported.
* At least 8GB of RAM is required (16-32GB for larger images and 3D volumes).
* Heavily tested on Windows 10 and Ubuntu 18.04.
* For the graphical interface, Mac OS later than Yosemite is required.

Instructions:

* Open an Anaconda prompt or command prompt with conda for Python 3 in the path.
* If you have an older Cellpose environment, remove it with conda env remove -n cellpose before creating a new one.
* Create a new environment with Python 3.8: conda create --name cellpose python=3.8 (you can use Python 3.9 or 3.10 as well).
* Activate the new environment: conda activate cellpose.
* To install the minimal version of Cellpose, run: python -m pip install cellpose.
* To install Cellpose and the GUI, run: python -m pip install cellpose[gui]. If you're on a zsh server, use ' ' around the cellpose[gui] call: python -m pip install 'cellpose[gui]'.
* To upgrade Cellpose, run: python -m pip install cellpose --upgrade.
* If you want to run Jupyter notebooks in this environment, also run: python -m pip install notebook and python -m pip install matplotlib.

Optional: You can also try to install Cellpose and the GUI dependencies from your base environment using the command: python -m pip install cellpose[gui]. If you encounter issues, refer to the documentation or use the environment file included in the repository: conda env create -f environment.yml.

GPU Version (CUDA) on Windows or Linux:

* Install the NVIDIA driver for your GPU and CUDA toolkit.
* Remove the CPU version of torch: pip uninstall torch.
* Install the GPU version of torch: conda install pytorch pytorch-cuda=11.6 -c pytorch -c nvidia (adjust CUDA version as needed).

Installation of GitHub Version:

* Follow the above steps to install dependencies.
* Run: pip install git+https://www.github.com/mouseland/cellpose.git.
* For code editing ability, in the GitHub repository folder, run: pip install -e ...
* To go back to the pip version of Cellpose, run: pip install cellpose.

Run Cellpose 1.0 Without Local Python Installation:

* Try Cellpose on the [website](https://www.cellpose.org/).
* Run Cellpose in Google Colab with a GPU using provided notebooks.

Executable File:

* Download an executable file for Windows 10 or Mac OS.
* For Mac OS, make it executable and run through the terminal.
* For Windows, click on the exe file to run the GUI.

Run Cellpose Locally:

* Open the GUI from a command line terminal using: python -m cellpose.
* Drag and drop images into the GUI to run Cellpose.

Pretrained Models:

* Models will be downloaded automatically from the website when running a pretrained model in Cellpose.
* If download issues, get models from Google Drive or [Baidu](https://pan.baidu.com/s/1CARpRGCBHIYaz7KeyoX-fg) (fetch code: pose).

# **Cellpose Instructional Guide**

## Getting Started

Ensure that you have successfully installed Cellpose following the provided installation guide. Activate the Cellpose environment before proceeding.

conda activate cellpose

Running Cellpose

### Local

#### GUI Usage

* Open a command line terminal.
* Activate the Cellpose environment.
* Run the GUI with the following command:

python -m cellpose

* Drag and drop images (e.g., \*.tif, \*.png, \*.jpg, \*.gif) into the GUI.
* Configure model and channel settings.
* Click the "Calibrate" button to estimate object size.
* Click "Run Segmentation" to process the images.
* Observe segmentation results and adjust settings as needed.

#### Command Line Interface (CLI)

To run Cellpose from the command line:

python -m cellpose --dir /path/to/images --chan 2 --save\_png

Adjust parameters such as --dir for the image directory, --chan for the channel to segment, and other options as needed.

## Pretrained Models

Cellpose will automatically download pre trained models when needed. If download issues arise, manually download models from Google Drive.

## Troubleshooting

If you encounter issues during installation or usage, refer to the [documentation](https://cellpose.readthedocs.io/) for more details. Open an issue on the GitHub repository if problems persist.

## References

* Cellpose 1.0 paper: Stringer, C., Wang, T., Michaelos, M., & Pachitariu, M. (2021). Cellpose: a generalist algorithm for cellular segmentation. Nature methods, 18(1), 100-106.
* Cellpose 2.0 paper: Pachitariu, M. & Stringer, C. (2022). Cellpose 2.0: how to train your own model. Nature methods, 1-8.

Feel free to explore additional features and functionalities as described in the [official documentation](https://cellpose.readthedocs.io/).