

Install and use MFA and FAVE

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1 Install basic needs

Make sure [Praat](#) is installed

You probably also want [homebrew](#) installed

2 Install miniconda

I used pkg on <https://docs.conda.io/projects/miniconda/en/latest/>. + Russ said if you use bash: don't do `./Miniconda(whatever).sh`, just do `bash Miniconda(whatever).sh` bc Mac switched to a version of sh that can't do bashisms (10/11/23)

Check to see that conda is installed properly by opening Terminal and typing in:

```
conda list
```

If you get a list of a bunch of stuff, congrats - miniconda worked. If you get an error, try re-installing (if you use pkg, you may need to more specifically specify a destination rather than just using all defaults)

2.1 Update to use mamba (faster solves)

Run each line separately, because you'll be asked to confirm in between

```
conda update -n base conda
conda install -n conda-libmamba-solver
conda config --set solver libmamba
```

2.2 Set to conda-forge

```
#conda config --add channels conda-forge\nconda config --set channel_priority strict

conda config --add channels conda-forge
conda config --set channel_priority strict
```

3 Now create your MFA conda env

```
conda create -n mfa python=3.8
```

3.1 We'll start our MFA env and set some global options

```
conda activate mfa
conda install montreal-forced-aligner=2.2.17
```

```
mfa configure --disable_auto_server
mfa server start
mfa server delete
mfa server init
#mfa server stop
mfa configure --always_clean --always_verbose
conda deactivate #just to exit the conda you made
```

4 Set up FAVE inside MFA conda

Note: I first set up two different conda envs, one for MFA and one for FAVE, but it's way more convenient to just install FAVE into the MFA env.

```
conda install sox
pip install fave==2.0.2
conda deactivate #just to exit the conda you made
```

5 Actually using MFA

Download the latest version of our dictionary and save it in the right place (I still need to figure out what's the right place)

Start by activating our mfa conda:

```
conda activate mfa
```

Rename our dictionary, once in mfa conda using: (update `path` to be the actual path). You only need to do this once (until you download a newer version of the dict, then do it again)

```
mfa model save --name mcddict dictionary ~path
```

if you already have a dict named mcddict, you'll have to specify `overwrite` in your call

```
mfa model save --name mcddict dictionary ~path --overwrite
```

You may need to also download `english_us_arpa` for the acoustic models.

```
mfa model download acoustic english_us_arpa
```

Running MFA: I set up an **input** folder and an **output** folder. I start by putting all my input .TextGrid and .wav files into the **input** folder. **Note:** you can drag and drop the folders into Terminal to make the path easier!

--clean is probably redundant here since we set opts to --clean globally, but in here just in case.

Can also add in --verbose as an option to see why it fails when it fails (e.g., for too short of chunks)

```
mfa server start
mfa validate --clean path/to/input/folder mcdict
mfa align --clean path/to/input/folder mcdict english_us_arpa path/to/output/folder
```

When you're done aligning your files, make sure you stop the MFA server and deactivate your conda.

```
mfa server stop
conda deactivate
```

6 Using FAVE

Now that your files are aligned, it's time to start FAVE-ing! The pip install version of FAVE has a handy way to tell it that your files were aligned with MFA (this is important because FAVE-align and MFA output the Phone vs. Word tiers in different orders). **tg file** here refers to the *output* of MFA (not the input to MFA). You will usually have two different textgrids named the same thing (one for the input to MFA and one for the output), so make sure you're using the right one!

If you try the following code and get an error saying that Praat isn't in your path, then follow the subheading directions.

```
extractFormants --mfa (wav file) (tg file) outputName.txt
```

It should start! The only actually needed input for the speaker info is gender and age (for Mahalanobis - I hear this is about to change in an upcoming version of FAVE though!), but any info you put in will be written into the output file, so it's usually helpful to put as much info in as you have.

6.1 If you need to add Praat to your path

You can do this each time you open your MFA conda, by typing in the following:

```
export PATH=/Applications/Praat.app/Contents/MacOS:$PATH
```

You can also add it to your path permanently, which needs to go either into your ~/.zshrc or ~/.bashrc, depending on your OS. You can figure out which one by typing in Terminal:

```
echo $SHELL
```

If that returns /bin/zsh, it means you need to update your ~/.zshrc. If it returns /bin/bash, it means you need to update your ~/.bashrc.

Type `nano ~/.zshrc` or `nano ~/.bashrc` (depending on which one you need to update), scroll down to the bottom, and add in the line:

```
export PATH=/Applications/Praat.app/Contents/MacOS:$PATH
```

Then hold control and push o (to save), and push enter so it saves. Then hold control-x to exit.

If you type `echo $PATH` you should see Praat listed in your path!

6.2 Quirky things w FAVE rn

You might find that your FAVE-extract stops at around 80% extraction, and then spits out an error saying:

```
UnboundLocalError: local variable 'changes' referenced before assignment
```

To be honest, I dug into the code to find out what this means and got far enough to be reassured that it's not an actual problem. I can't actually remember what it is, except to say:

- It doesn't actually impact the vowel extraction
- Congrats, your files are all going to be done extracting when the progress bar gets around 80%!