

Getting Started

Overview

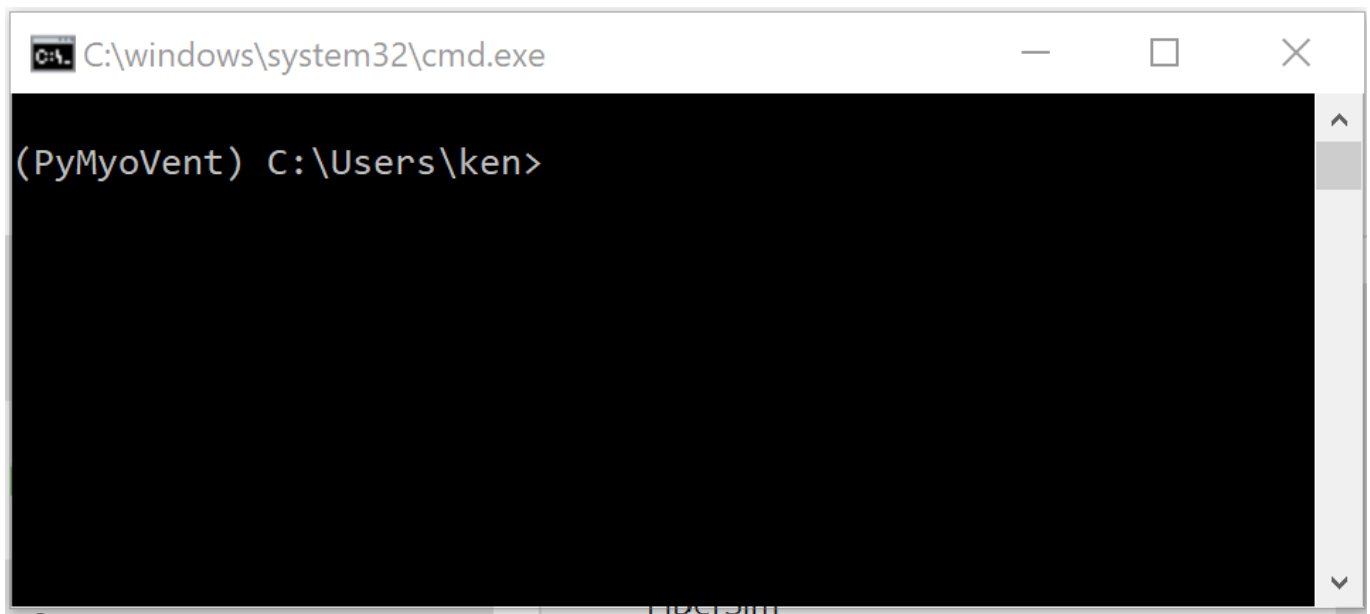
This page explains how to run a simple simulation. The other demos build from this example so this page is the best place to start if you want to learn how to use PyMyoVent for your own work.

Assumptions

We assume that you have

- installed Anaconda
 - see [howtos Anaconda](#) if you need help
- have pulled the latest version of the [PyMyoVent repository](#) from GitHub
 - see [howtos GitHub](#)
- activated the PyMyoVent environment
 - see [howtos using an existing environment](#)
- have opened a command prompt for the environment
 - see [howtos via command line](#)

If you have followed these instructions, you should see a window that looks like this. (Note that your path will be different but it should start `(PyMyoVent) C:\Users\ken>`).



Running the demo

- Change your directory to `<repo>/Python_code` where `<repo>` is the top-level directory for the files that you pulled from GitHub.
 - In this example, we type `cd c:/ken/github/campbellmusclelab/models/pymyovent`

```

C:\windows\system32\cmd.exe

(PyMyoVent) C:\Users\ken>cd/ken/github/campbellmusclelab/models/pymyovent/python_code

(PyMyoVent) C:\ken\GitHub\CampbellMuscleLab\models\PyMyoVent\Python_code>

```

- Type `python pymyovent.py demo 3state_with_SRX_base`
- After a few seconds you should see some text printing to the screen

```

C:\windows\system32\cmd.exe - python pymyovent.py demo 3state_with_SRX_base

_SRX_base

(PyMyoVent) C:\ken\GitHub\CampbellMuscleLab\models\PyMyoVent\Python_code>python pymyovent.py demo 3state_with_SRX_base
Initialising single_ventricle_circulation from ../demo_files/3state_with_SRX_base/sim_input/model_3state_with_SRX_base.json
Sim time (s): 0 0% complete
{}
Sim time (s): 1 5% complete
{}
Sim time (s): 1 10% complete
{}
Sim time (s): 2 15% complete
{}
Sim time (s): 2 20% complete
{}
Sim time (s): 3 25% complete
{}

```

- After a minute or so, the code will finish leaving you back at the command prompt

```

C:\windows\system32\cmd.exe

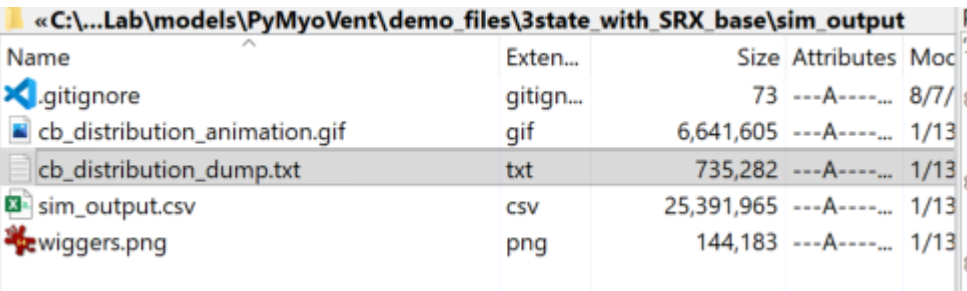
me: 1910 Frame: 1920 Frame: 1930 Frame: 1940 Frame: 1950 Frame: 1960 Frame: 1970 Frame: 1980 Frame: 1990
Frame: 2000 Frame: 2010 Frame: 2020 Frame: 2030 Frame: 2040 Frame: 2050 Frame: 2060 Frame: 2070 Frame:
2080 Frame: 2090 Frame: 2100 Frame: 2110 Frame: 2120 Frame: 2130 Frame: 2140 Frame: 2150 Frame: 2160 Fra
me: 2170 Frame: 2180 Frame: 2190 Frame: 2200 Frame: 2210 Frame: 2220 Frame: 2230 Frame: 2240 Frame: 2250
Frame: 2260 Frame: 2270 Frame: 2280 Frame: 2290 Frame: 2300 Frame: 2310 Frame: 2320 Frame: 2330 Frame:
2340 Frame: 2350 Frame: 2360 Frame: 2370 Frame: 2380 Frame: 2390 Frame: 2400 Frame: 2410 Frame: 2420 Fra
me: 2430 Frame: 2440 Frame: 2450 Frame: 2460 Frame: 2470 Frame: 2480 Frame: 2490 Frame: 2500 Frame: 2510
Frame: 2520 Frame: 2530 Frame: 2540 Frame: 2550 Frame: 2560 Frame: 2570 Frame: 2580 Frame: 2590 Frame:
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me: 2690 Frame: 2700 Frame: 2710 Frame: 2720 Frame: 2730 Frame: 2740 Frame: 2750 Frame: 2760 Frame: 2770
Frame: 2780 Frame: 2790 Frame: 2800 Frame: 2810 Frame: 2820 Frame: 2830 Frame: 2840 Frame: 2850 Frame:
2860 Frame: 2870 Frame: 2880 Frame: 2890 Frame: 2900 Frame: 2910 Frame: 2920 Frame: 2930 Frame: 2940 Fra
me: 2950 Frame: 2960 Frame: 2970 Frame: 2980 Frame: 2990 Animation built
Animation written to ../demo_files/3state_with_SRX_base/sim_output/cb_distribution_animation.gif
[8.49999999998897, 9.99950000000073]
Saving figure to C:\ken\GitHub\CampbellMuscleLab\models\PyMyoVent\Python_code\../demo_files/3state_with_
SRX_base/sim_output/wiggers.png

(PyMyoVent) C:\ken\GitHub\CampbellMuscleLab\models\PyMyoVent\Python_code>

```

Finding the results

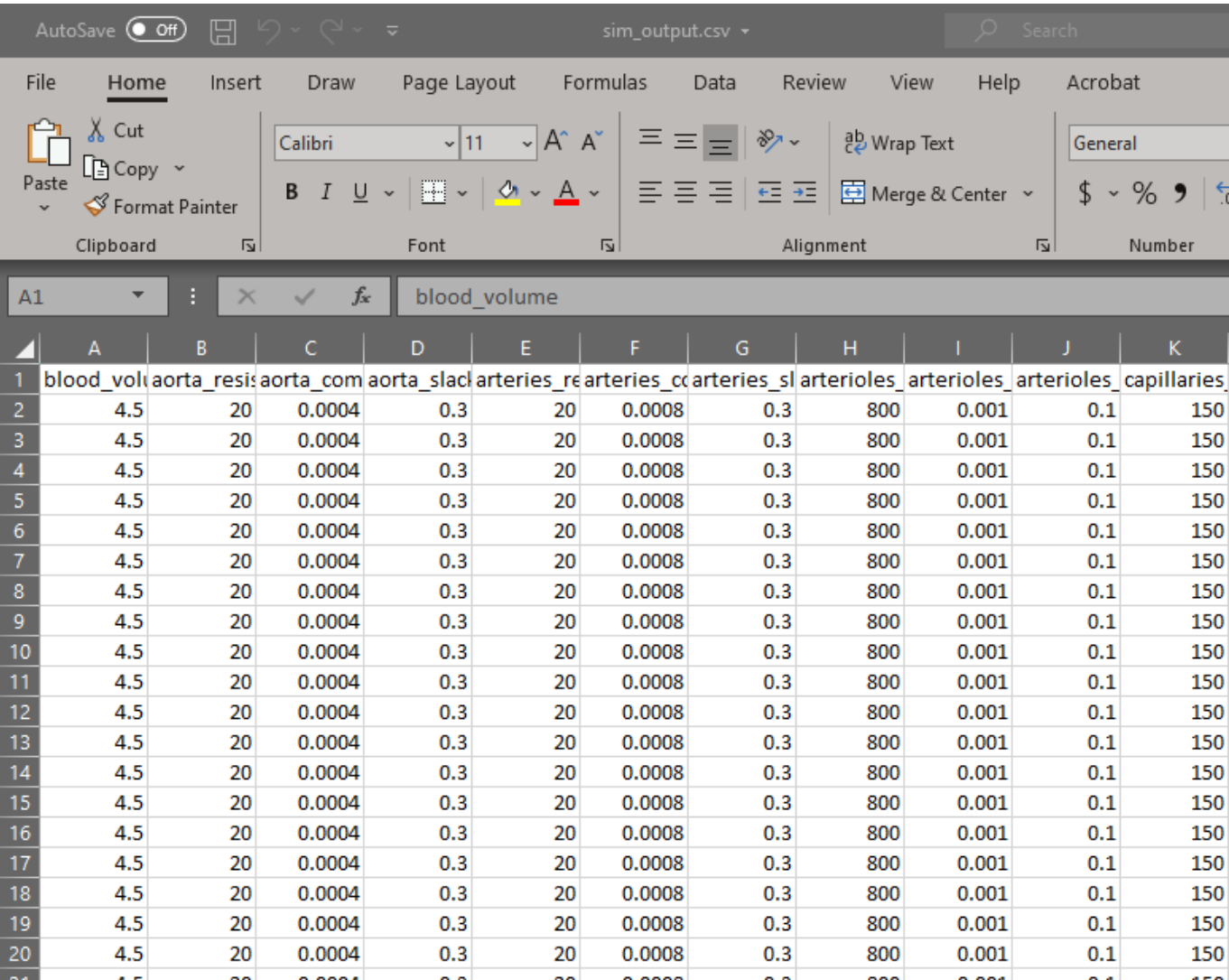
- Use File explorer or similar to look at <repo>/demo_files/3state_with_SRX_base/sim_output



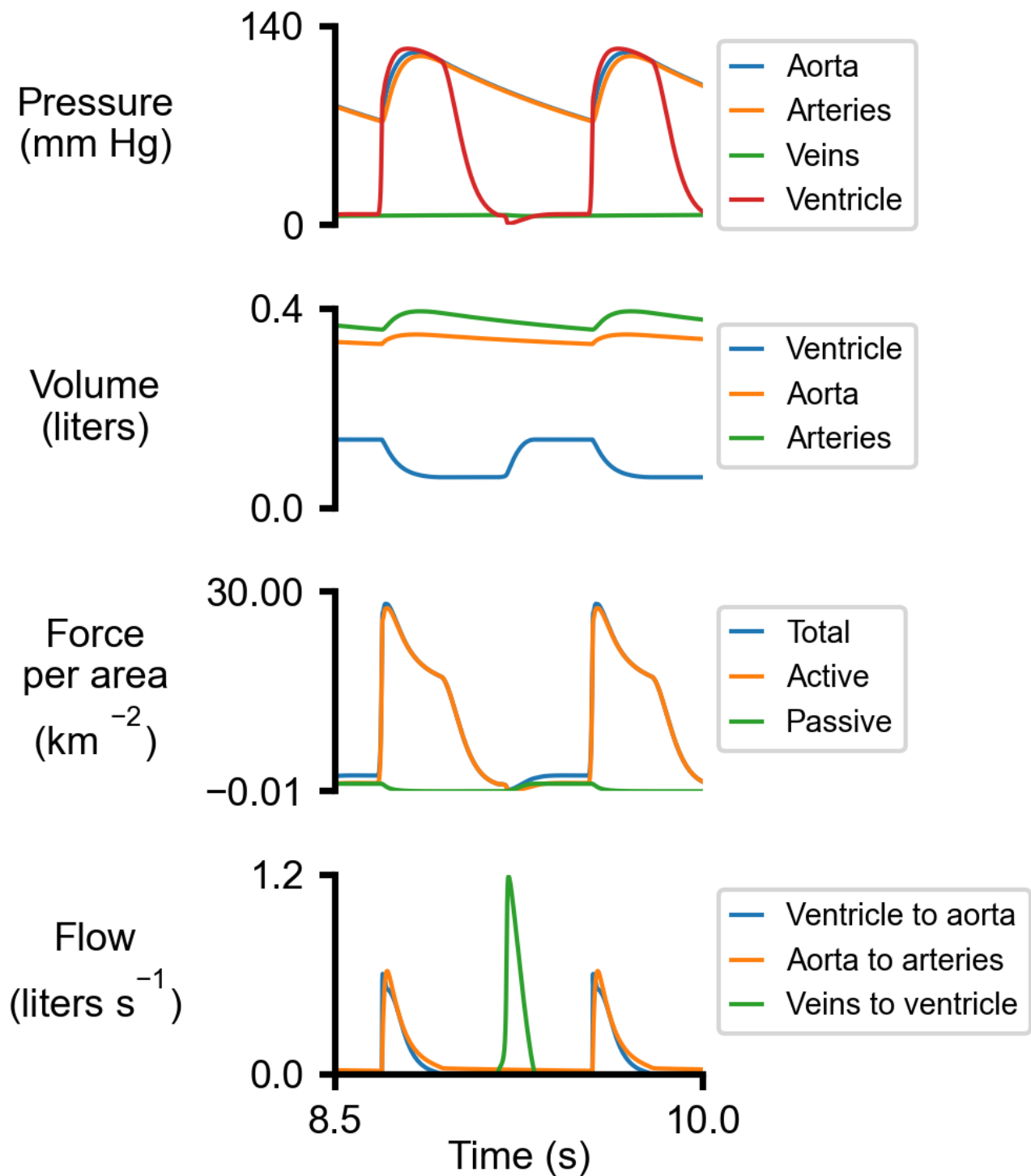
You should find some new files including:

- `sim_output.csv` - this is a Comma Separated Value (a type of text file you can open in Excel or a text editor). It includes all of the information from the simulation.

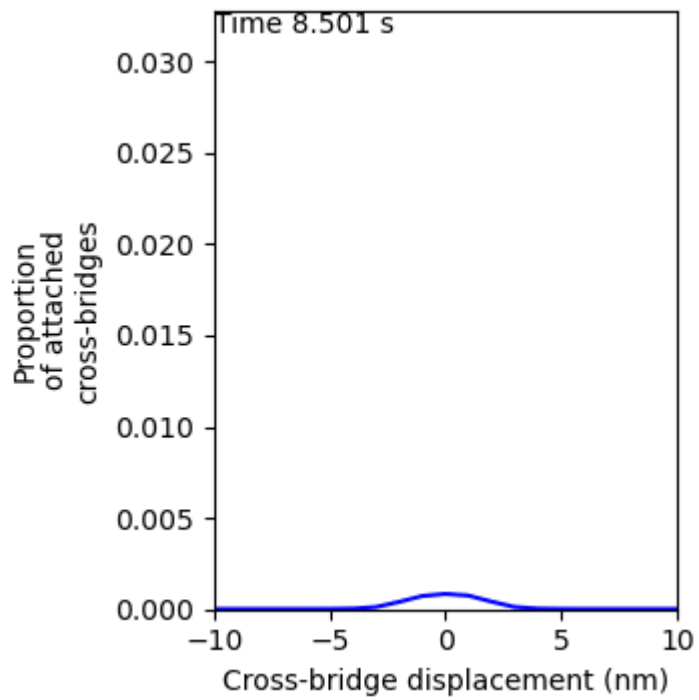
Here is the top left corner.



- `wiggers.png` - this is an image file showing the last few seconds of the simulation as a Wiggers diagram



- [cb_distribution_animation.gif](#) - this is an animation of the data written to [cb_distribution_dump.txt](#) which shows the number of myosin heads attached with different displacements as a function of time during the cardiac cycle.



That's it. You've run a simulation and created a figure of a Wiggers diagram that summarizes cardiovascular function.

The rest of this page explains what the code did.

What the code did