

## User Manual

FHG2A is a purely graphical application at the moment. A gemfile is provided in order to ease installation, so a `gem install fhg2a-0.4.0.gem` should install it with all its dependencies.

However, if that fails, install the following gems as dependencies with `gem install` manually:

- gruff
- kwalify
- gtk2

Gruff may still require some extra dependencies. As mentioned in the report, it relies upon the ImageMagick framework. Under Ubuntu (tested with 13.04), the following packages may need to be installed using `apt-get`: `imagemagick`, `libmagickwand-dev`. It is also possible to install this software on Windows and Mac OS X, although the process is more complicated.

The project contains a makefile, despite there being nothing to compile. The makefile is simply a convenience to run the correct file (`driver.rb`) with Ruby.

Once you run the driver, you should see the window pop up. The controls are fairly intuitive:

- Turns per second: This will determine how fast the simulation tries to run. Note that you won't necessarily reach this actual speed; but it serves as an upper bound.
- Simulation iterations This will determine how long the simulation will run before stopping
- Graph type: This will change the measurement that the bar graphs are representing
  - Percentage of capacity: the patch's size as a fraction of the capacity
  - Energy capacity: the patch's available energy as a fraction of the maximum across all patches
  - Size: the patch's size as a fraction of the maximum size across all patches
- Iteration 0: This counter shows the current iteration number
- Reset: This button resets the simulation to the initial state; be patient, this may take a bit of time on slower computers
- Start simulation: This button starts the simulation with the current parameters, and turns into a Stop simulation button.
- Stop simulation: This button stops the simulation, and turns into a Start simulation button
- Tabs:
  - Population graph: This is a graph of population and death over time (birth is not included because it's a simple percentage probability calculation, and not very interesting)
  - Resources graph: This is a graph of instantaneous resource consumption by resource type; this is perhaps the most interesting piece of analysis, as it shows precisely what the paper author was after -- the switch from prey/cereal to farming.

## Configuration

The configuration file has a very simple syntax. Unfortunately, there are very few fields that you can omit, so filling it out by hand can become tiresome. The format was mostly designed to be machine generated, and there's a Ruby script provided that will do just that. You may find it easier to tweak values in the Ruby script than write a new config from scratch.

Of course, if you can program in any other interpreted language, you may use it to generate the config. Just make sure to use a hashbang -- a literal `#!` followed by the absolute path to the interpreter of your language.

For a detailed description of the precise fields required, see the well-documented `schema.yml` file.

For more information about the APIs of the simulation itself, should you wish to extend it, can be found in the `doc/` directory.