

# PyBike



Presentation - v\_1.0

<https://bitbucket.org/mshokrof/pybike>



# Participants

**Mostafa Shokrof - Computer Science**



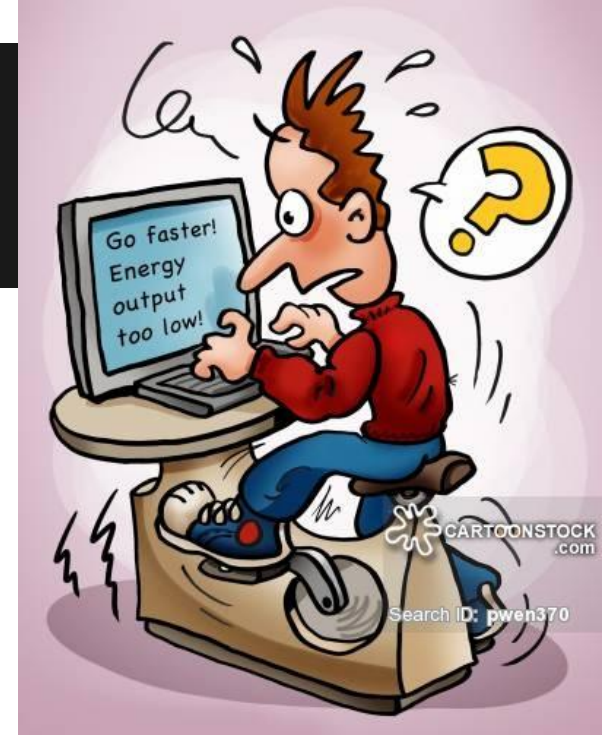
**Pablo Echevarria - Computer Science**



**Hossein Ghorbanfekr Kalashami - Physics**



**Vinicius de Godoi Contessoto - Biophysics**



# Problem

Bike

Particles-Wheels connected by springs

+

Genetics Algorithms

# Project Details

## OO design:

- Classes:
  - Particles: Points and Wheels
  - Forces: Collision, Spring and Gravitational
  - Physics: know how to move particles
  - Scenery: contains ground definition and is the responsible to start the action
  - Graphics

# What we used

- hg, central server [bitbucket.org](http://bitbucket.org)
- python 2.7
  - matplotlib
  - unittest
  - numpy
  - sphinx
  - umbrella

# Development Troubles

- Communication: We must correct the same bug twice or more
- Merging problems
- Lot of work was needed to make Graphics class
- At the beginning, started using unittest but next give up
- Numerical precision
- Dealing with the time limit

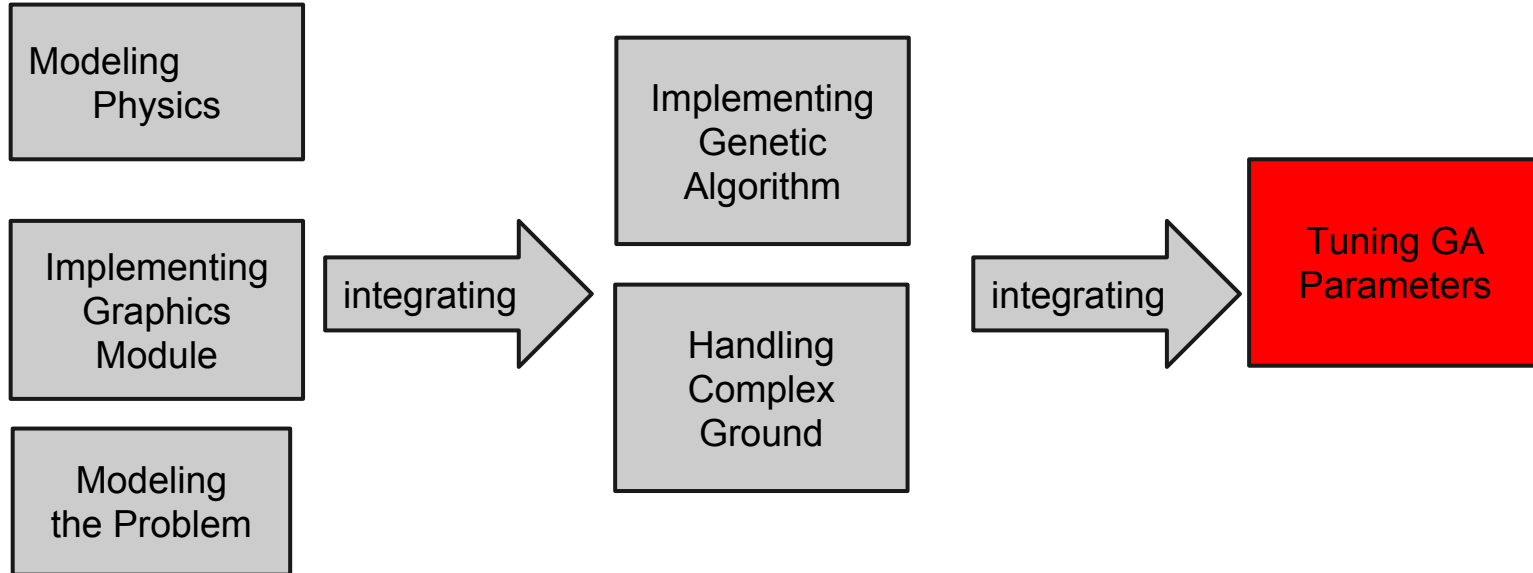
# Developing strategy

The group was split in two:

- Model the physics (Verlet algorithm)
- Model the problem (wheel, graphics, etc)

Next step:

- Join together
- Once the bike worked, we focus on more complex ground and in GA
- Implementing GA as independent package + unittest





# Developing problems

Two groups:

- More complex ground
- Debugging, tuning constants for more realistic bike
- The code was merged but doesn't seem work properly :(

# Developing problems

**HG** Saved us  
We could rollback

:)

# ToDo

- Complete testing (unittest, integration)
- Profiling
- GA
- Complete Documentation
- Tutorials

# DEMO

