The Abdus Salam
International Centre
for Theoretical Physics

4th Workshop on Advanced Techniques
for Scientific Programming and Management of Open source Software Packages
7 – 18 March 2016, Miramare, Trieste, Italy

The Genetic Bike

Supervising: David Grellscheid (UK)

<u>Group 3</u>
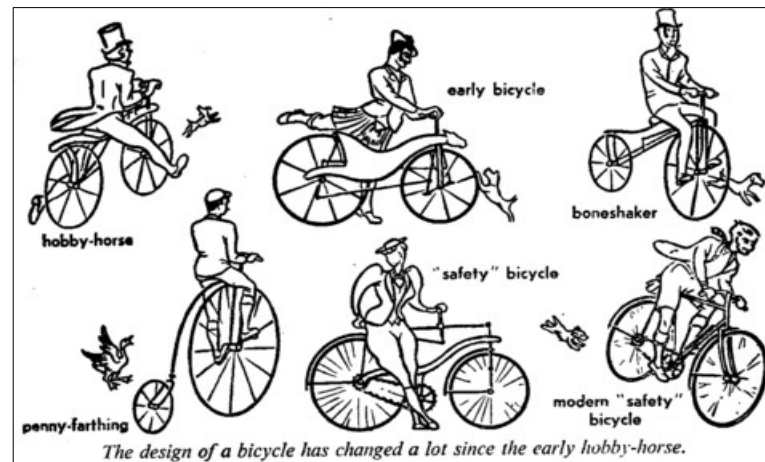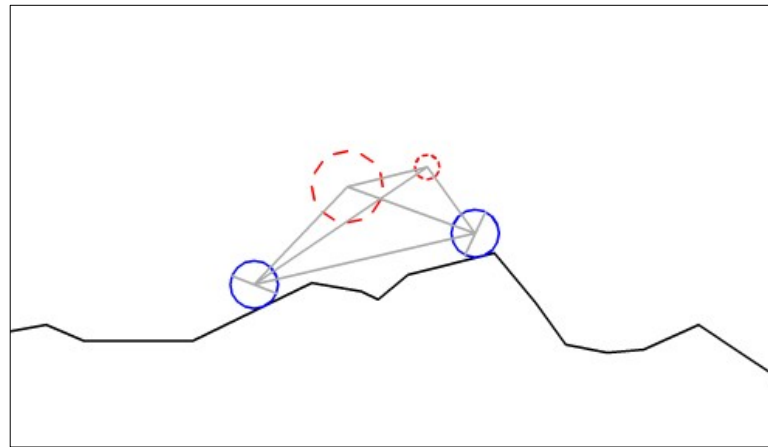
Kevin Speyer (Argentina)

Firouzian Amir Hossein (Iran)

Faraji Nafchi Somayeh (Iran)
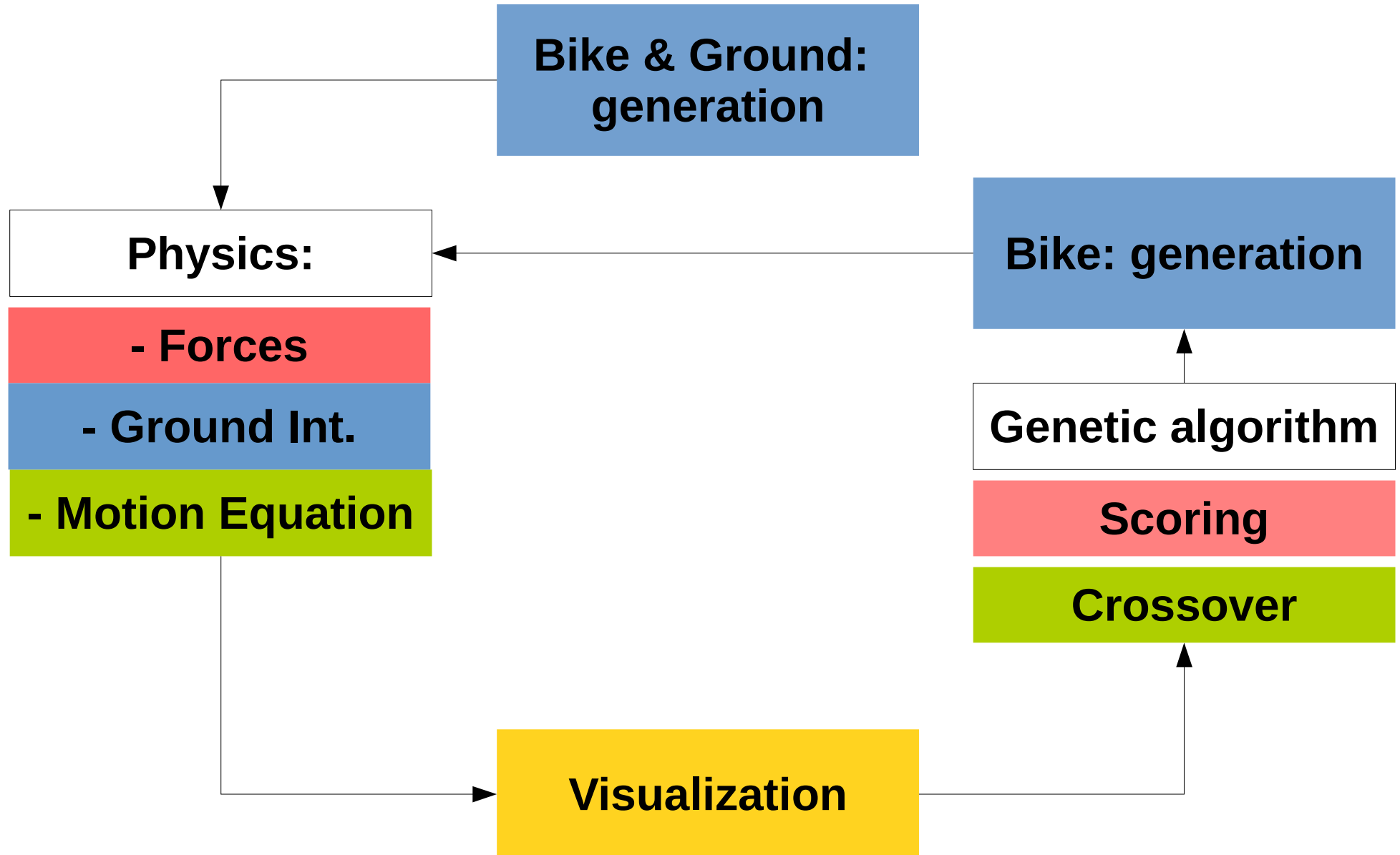
Tatiana Russkova (Russia)

Objective

Create a simulation in Python to evolve an optimal bicycle frame
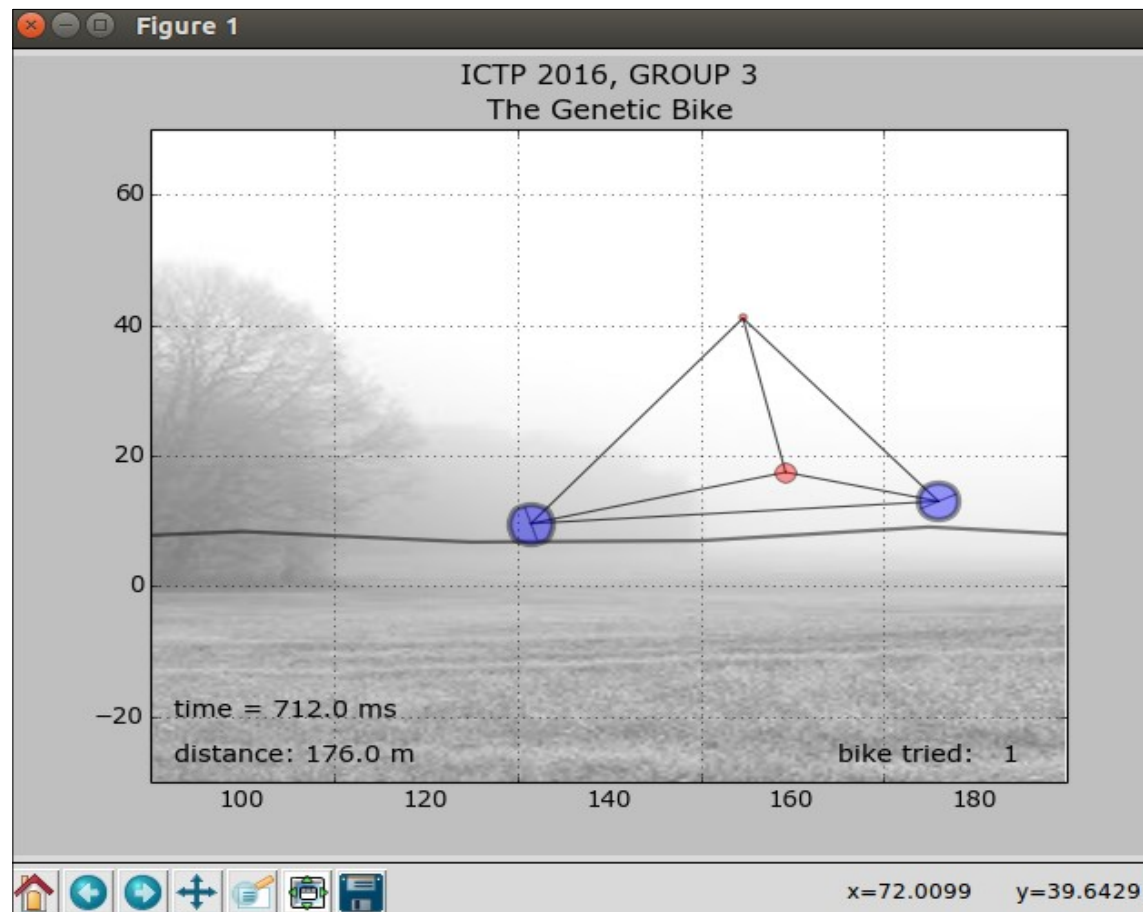
Main sub-tasks

1. Generation of initial bike's population

2. Physical model of simple bike and ground

3. Implementation of genetic algorithm

4. Visualization of simulation

5. Managing the development tasks
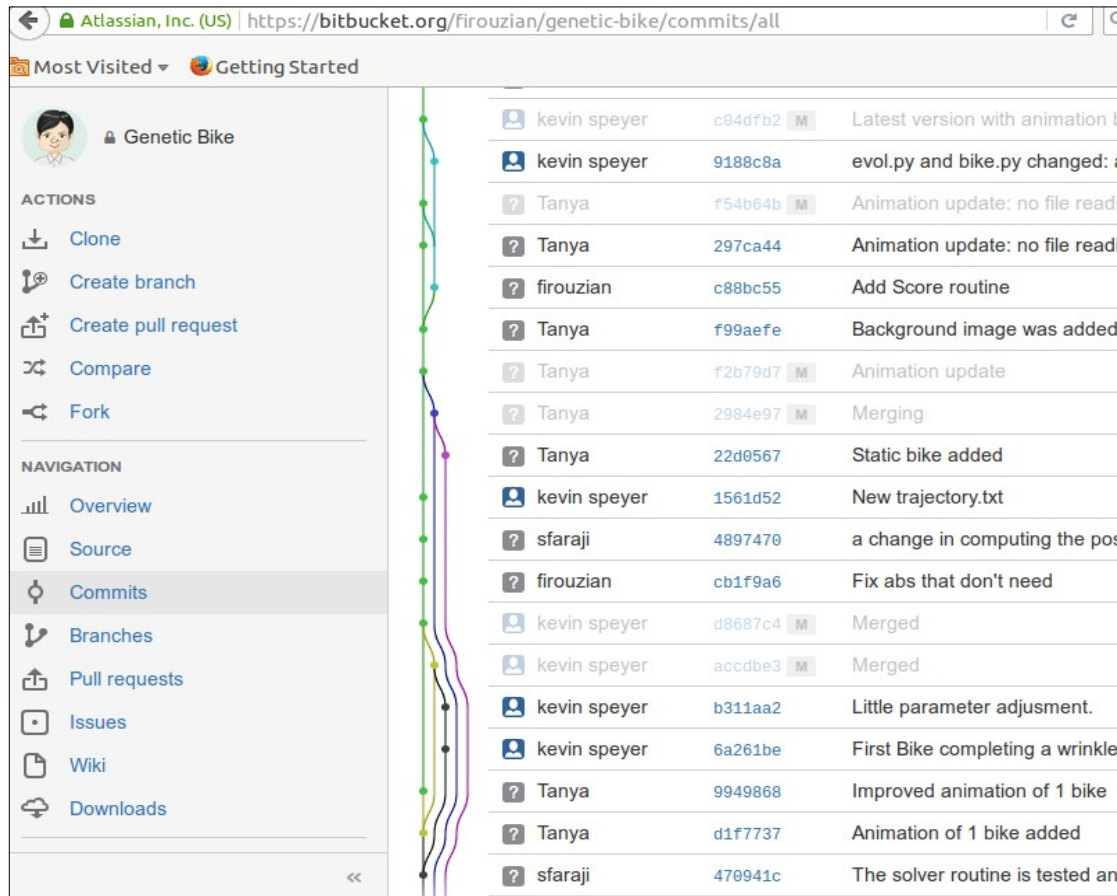
Program design

Visualization

- class Render(object): draw bike motion, frame by frame

- Matplotlib plotting library was used

Tools to share information

Trello board

Bitbacket & Mercurial

Problems

- Communication

- Communication

- Communication

- Bottle Neck

- No module testing before commiting

Conclusions

1. Excellent project to learn:

   - modern software development tools

   - management tools

   - documentation software

2. Divide tasks in independent modules is a good option

3. Teamwork:

   "The whole may be less than the sum of its parts."

4. Having project manager

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Thank you!