

## **GAVIP-GridComputing**

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### **Abstract**

GAVIP-GC is a project designed to take an advantage of using freely available CPU and memory resources provided by the volunteers of the BOINC platform in order to analyze the data from the Gaia archive on the GAVIP platform.

### **1 Gaia**

Gaia is a very successful space mission of the European Space Agency, still in operation, which provides huge amount of information about the positions, velocities and other parameters of the stars of the Milky Way. The Gaia archive is planned to have eventually over 1 petabyte of data. It is becoming more and more crucial to provide tools able to analyze the archive in a complex way.

### **2 GAVIP**

GAVIP is a computing platform, supported by ESA, designed for data analysis in a form of self-contained Docker images. GAVIP platform runs the containers close to the Gaia archive. This provides a unique and fast way to access the current Gaia Data Release 2 and the future ones.

### **3 BOINC**

In turn, the BOINC platform is designed to run user codes in a distributed way across the globe on the hardware provided by the volunteers. An example of a project running on BOINC platform is the well known SETI@Home. In our project we use volunteer computers to analyze the data from Gaia archive, especially the ones which demand significant amount of CPU time for computations.

### **4 GAVIP-GC**

GAVIP-GC will simplify the process of writing a code for the BOINC platform. This will allow scientists (or any other users) who have no access to large computing facilities, to perform complex data analysis using the Gaia archive. GAVIP-GC, through the GAVIP platform, will provide also some disk space for storing the data as well as Jupyter notebooks in order to analyze the results further with the python programming language.

### **5 Gaia@home**

<http://gaiaathome.eu>

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