Programação Paralela Avançada

Computação Voluntária

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07/11/2019

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Agradecimentos

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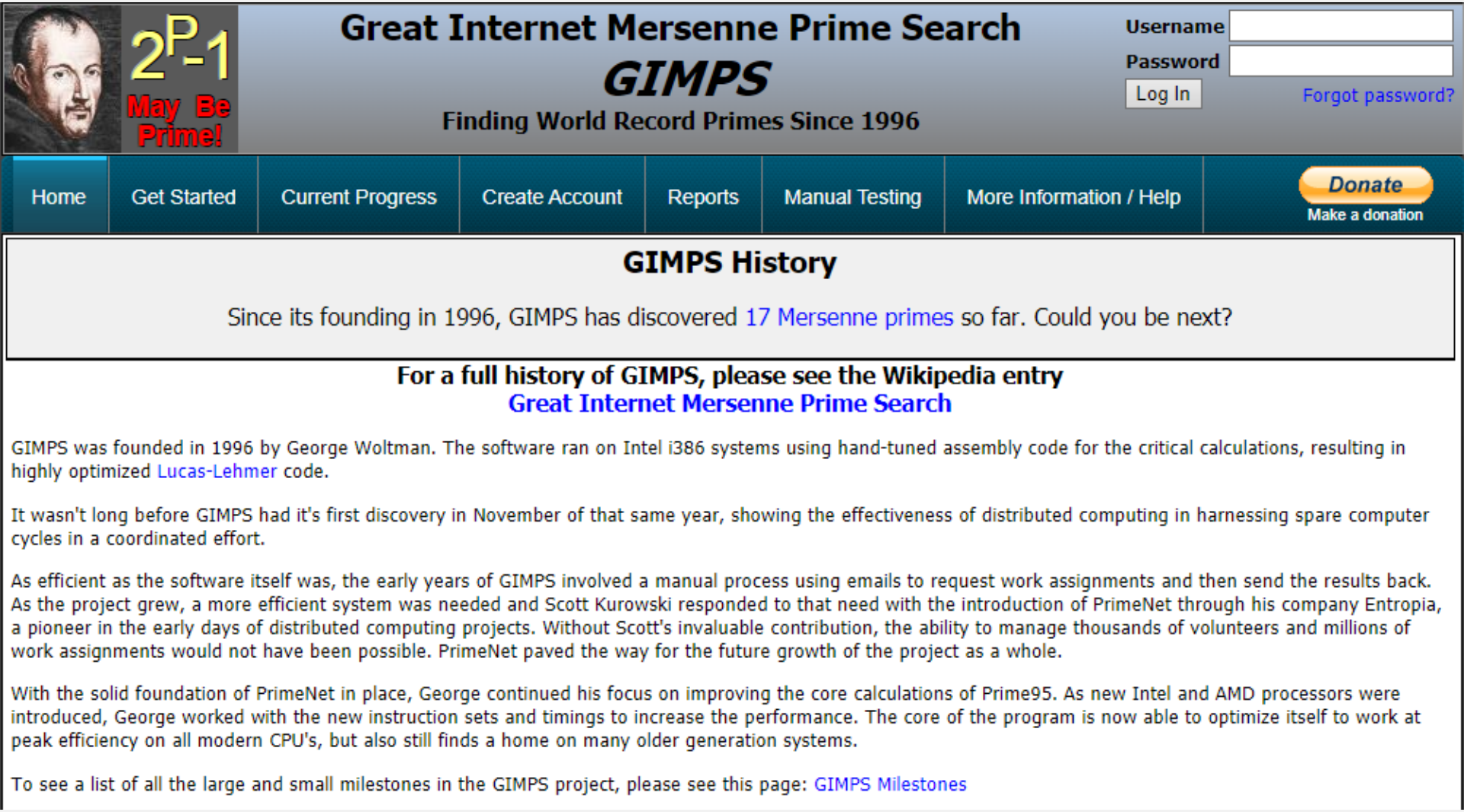
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Finding World Record Primes Since 1996
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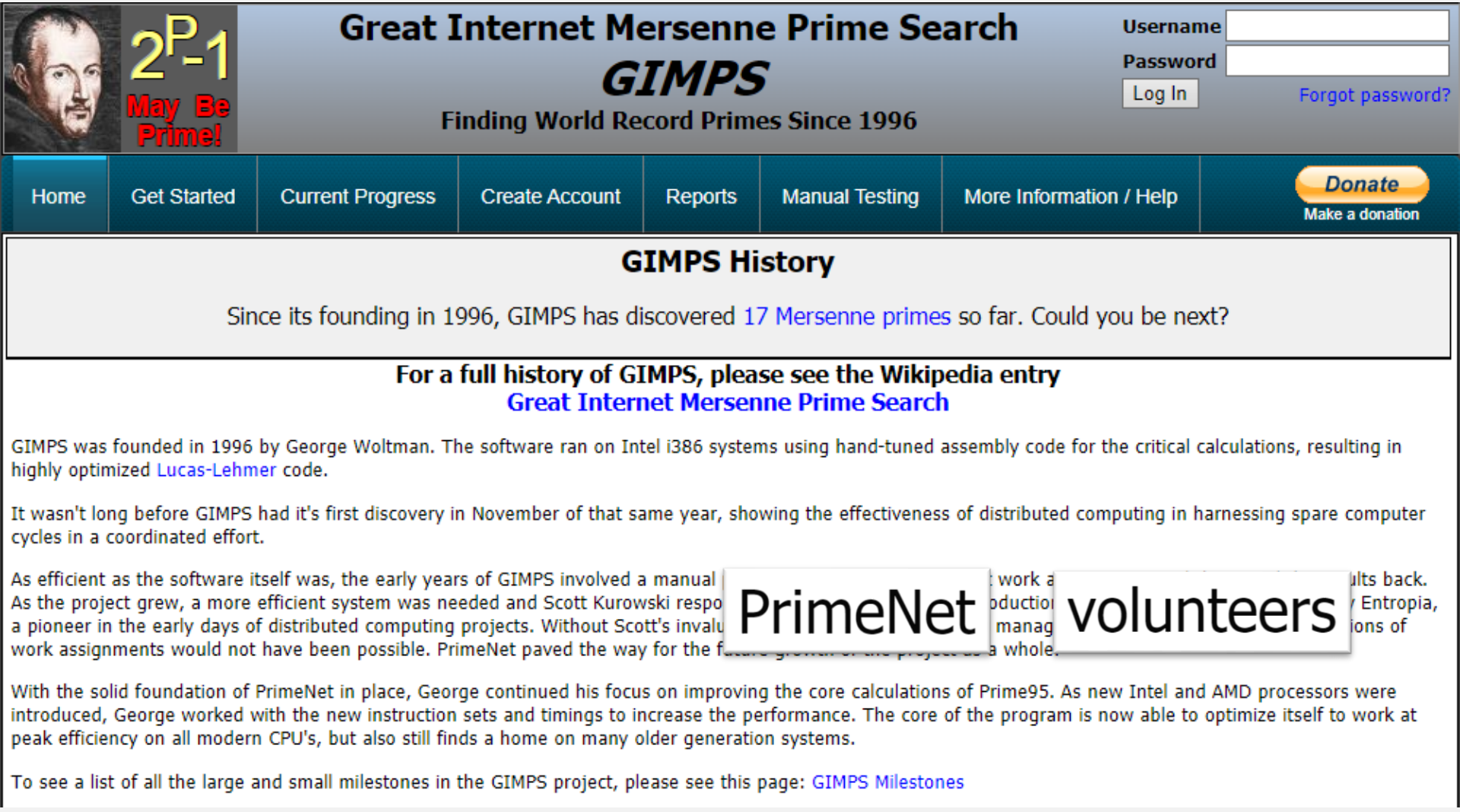
GIMPS History
Since its founding in 1996, GIMPS has discovered 17 Mersenne primes so far. Could you be next?
For a full history of GIMPS, please see the Wikipedia entry
Great Internet Mersenne Prime Search
GIMPS was founded in 1996 by George Woltman. The software ran on Intel i386 systems using hand-tuned assembly code for the critical calculations, resulting in highly optimized Lucas-Lehmer code.
It wasn't long before GIMPS had it's first discovery in November of that same year, showing the effectiveness of distributed computing in harnessing spare computer cycles in a coordinated effort.
As efficient as the software itself was, the early years of GIMPS involved a manual process using emails to request work assignments and then send the results back. As the project grew, a more efficient system was needed and Scott Kurowski responded to that need with the introduction of PrimeNet through his company Entropia, a pioneer in the early days of distributed computing projects. Without Scott's invaluable contribution, the ability to manage thousands of volunteers and millions of work assignments would not have been possible. PrimeNet paved the way for the future growth of the project as a whole.
With the solid foundation of PrimeNet in place, George continued his focus on improving the core calculations of Prime95. As new Intel and AMD processors were introduced, George worked with the new instruction sets and timings to increase the performance. The core of the program is now able to optimize itself to work at peak efficiency on all modern CPU's, but also still finds a home on many older generation systems.
To see a list of all the large and small milestones in the GIMPS project, please see this page: GIMPS Milestones

Introdução



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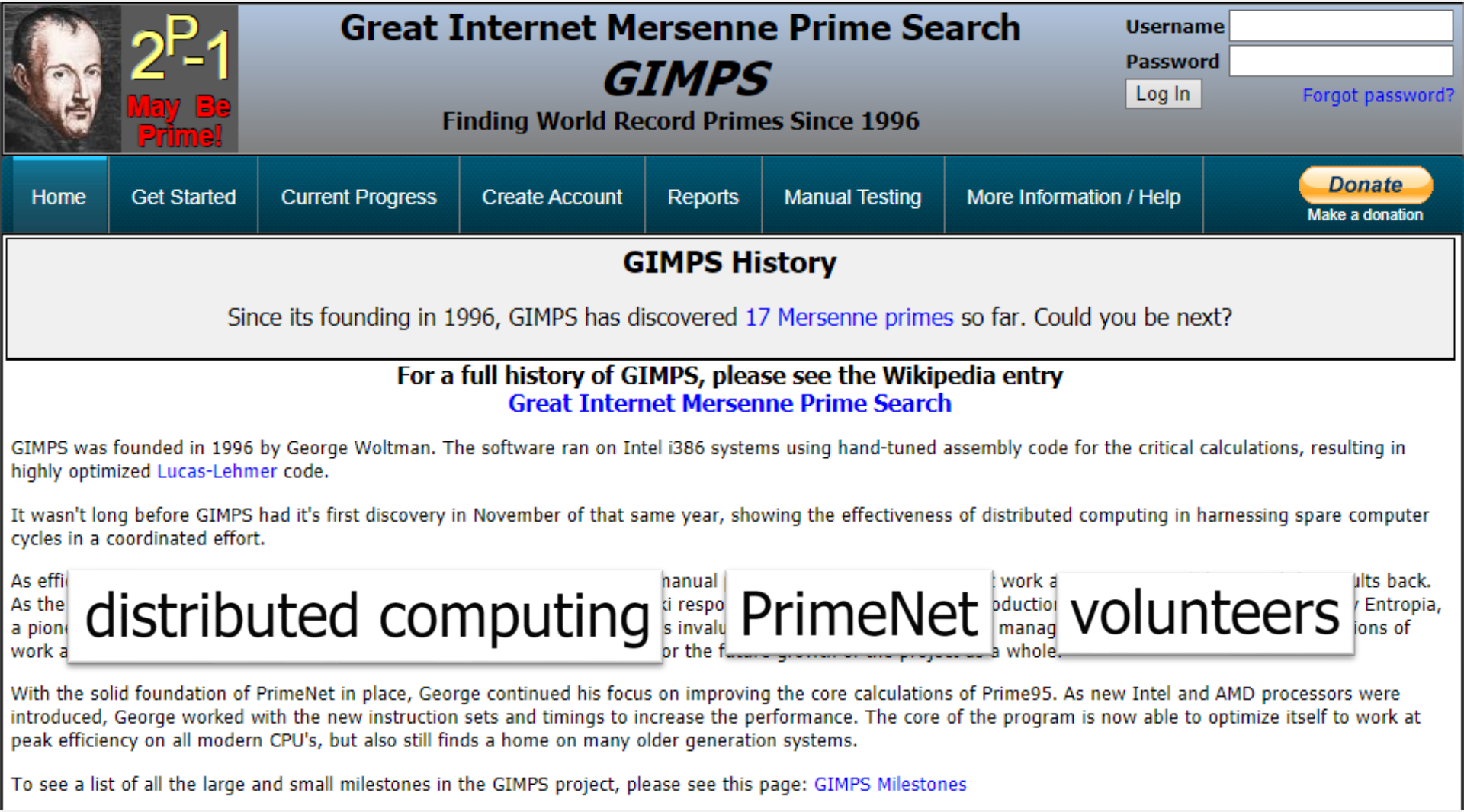

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Introdução

Programação Paralela = Computação Voluntária

Introdução

Programação Paralela = Computação Voluntária
+
Voluntários

Introdução

Programação Paralela = Computação Voluntária
+
Voluntários

$$A = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ a_{m1} & a_{m2} & \cdots & a_{mn} \end{bmatrix}$$

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Introdução

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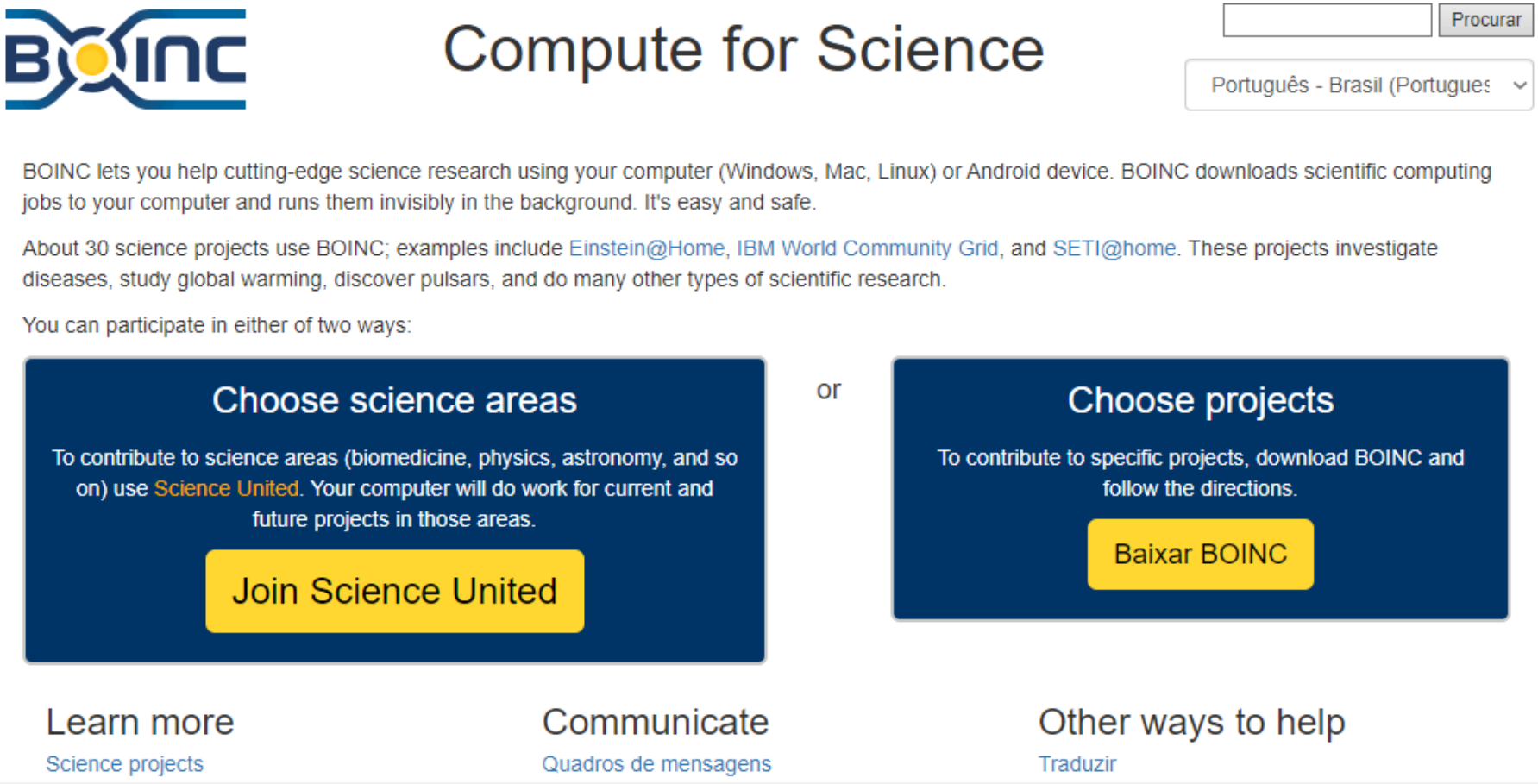
Plataforma



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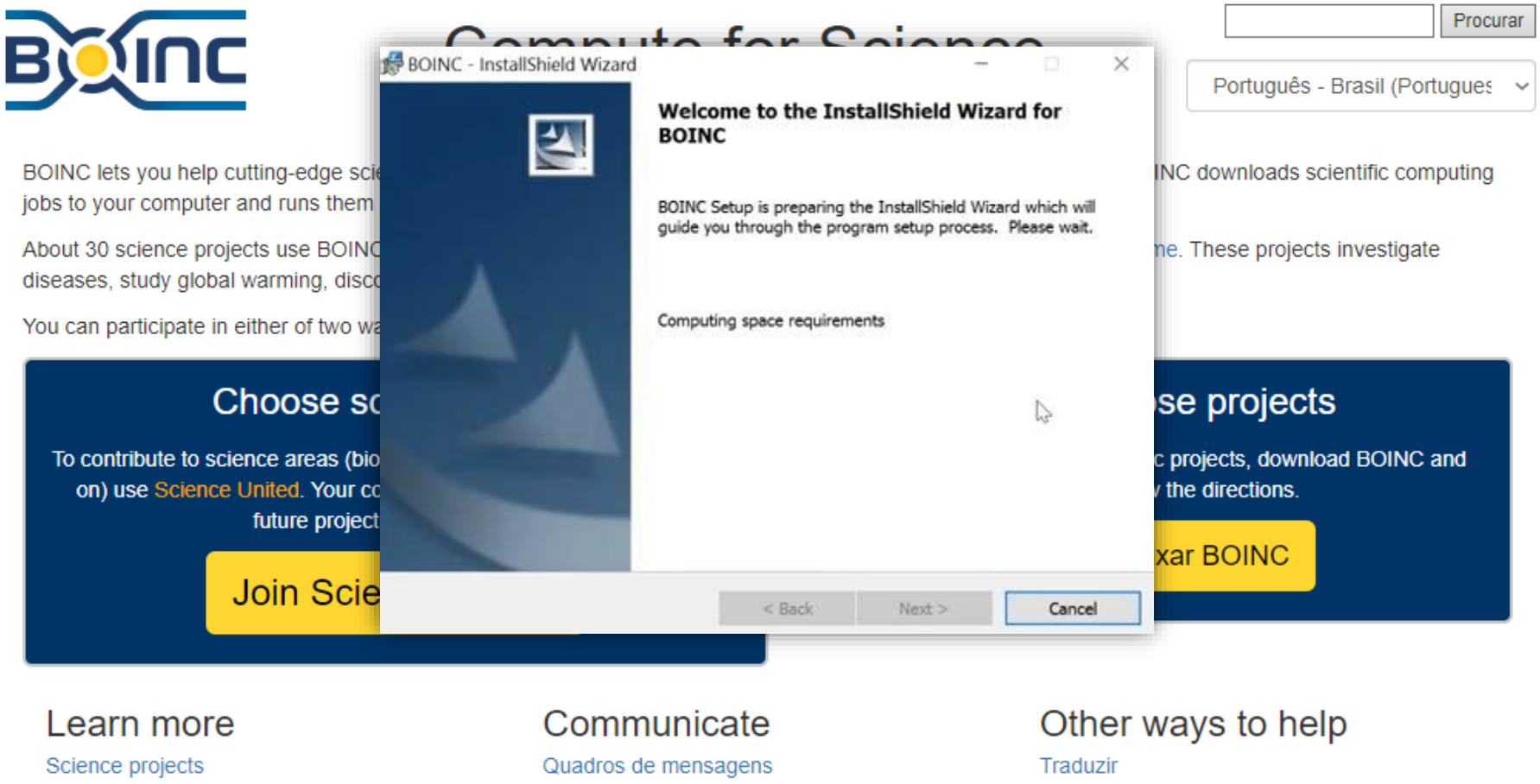
Plataforma



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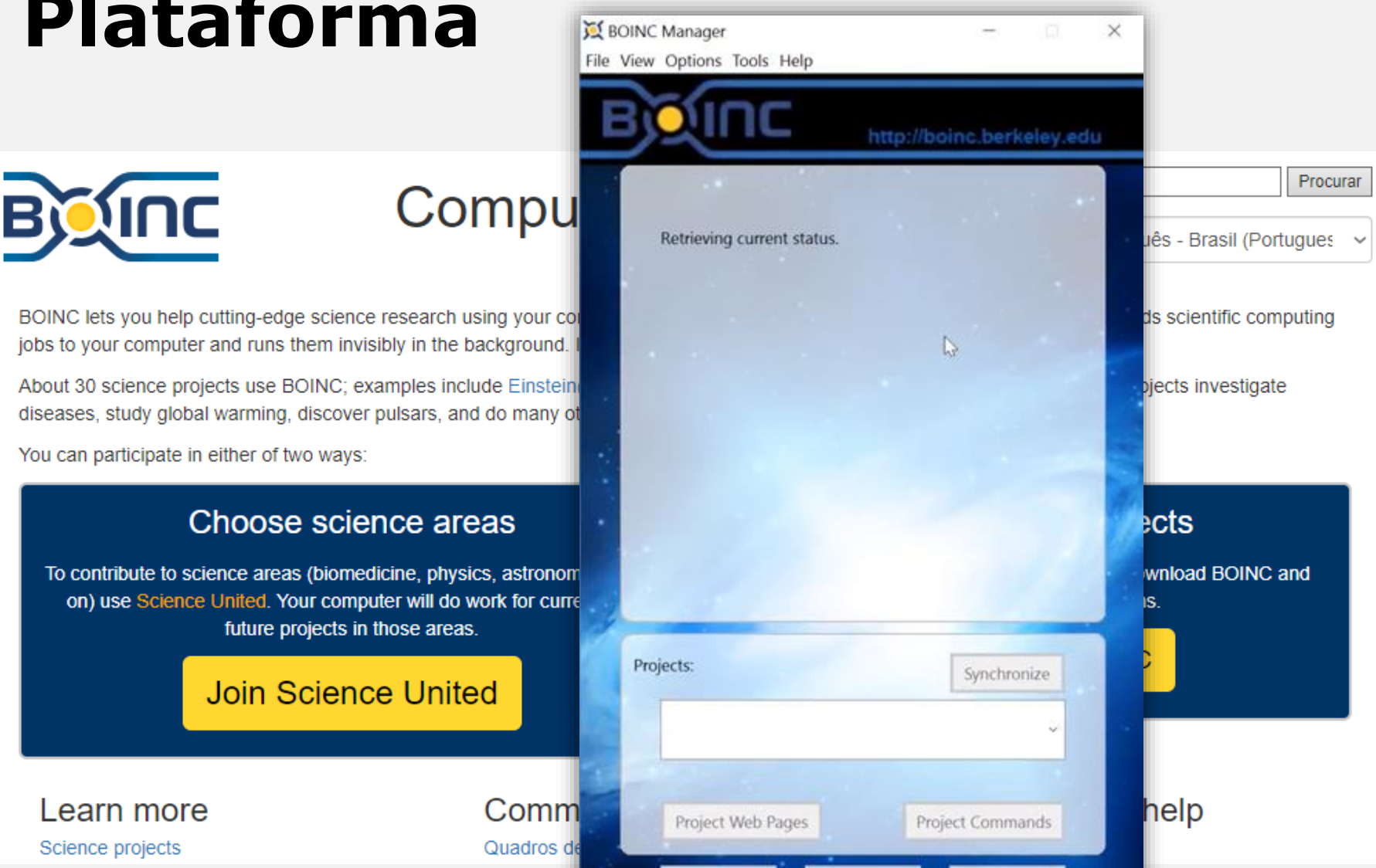
BOINC Manager
File View Options Tools Help
http://boinc.berkeley.edu
Retrieving current status.
Projects:
Synchronize
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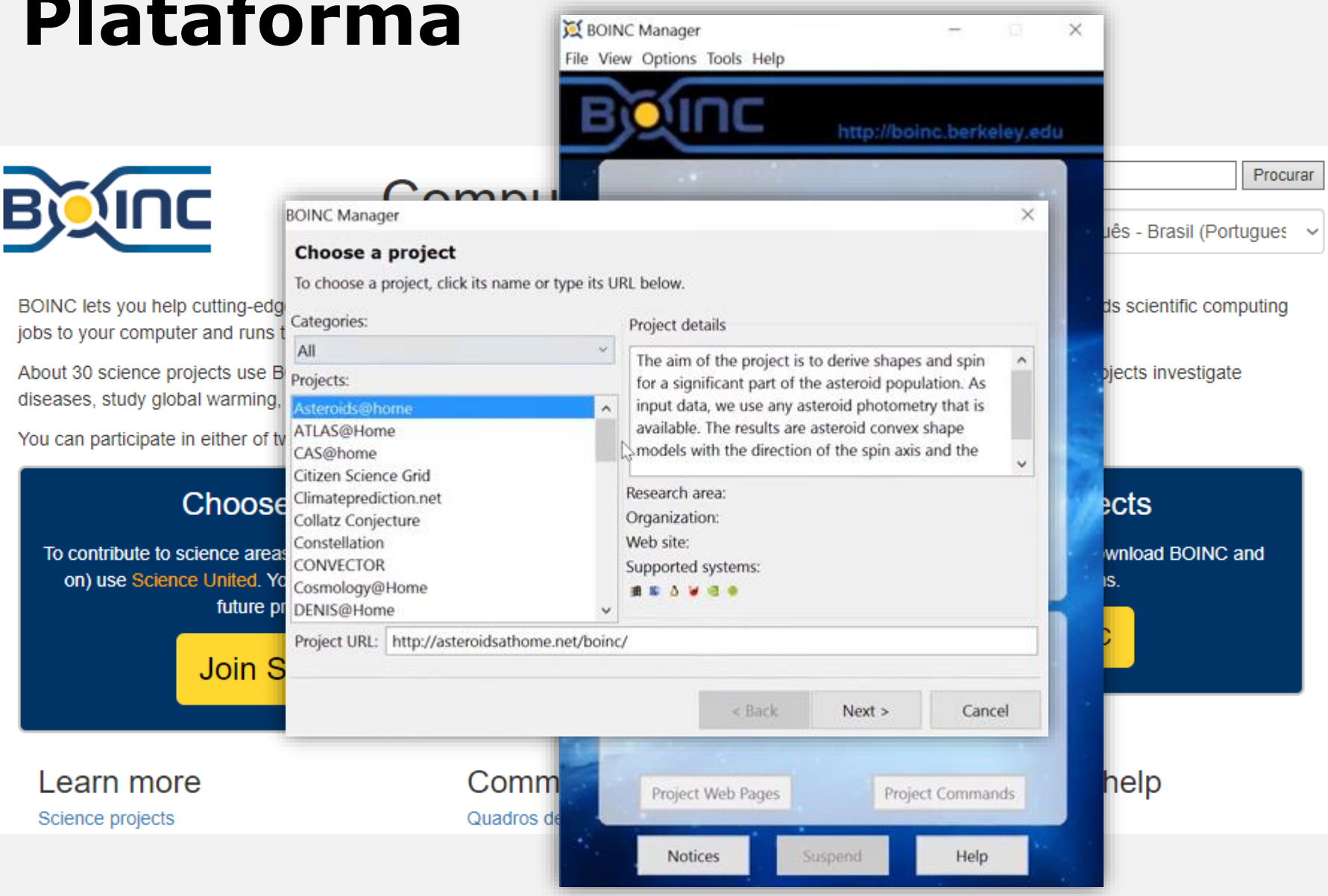

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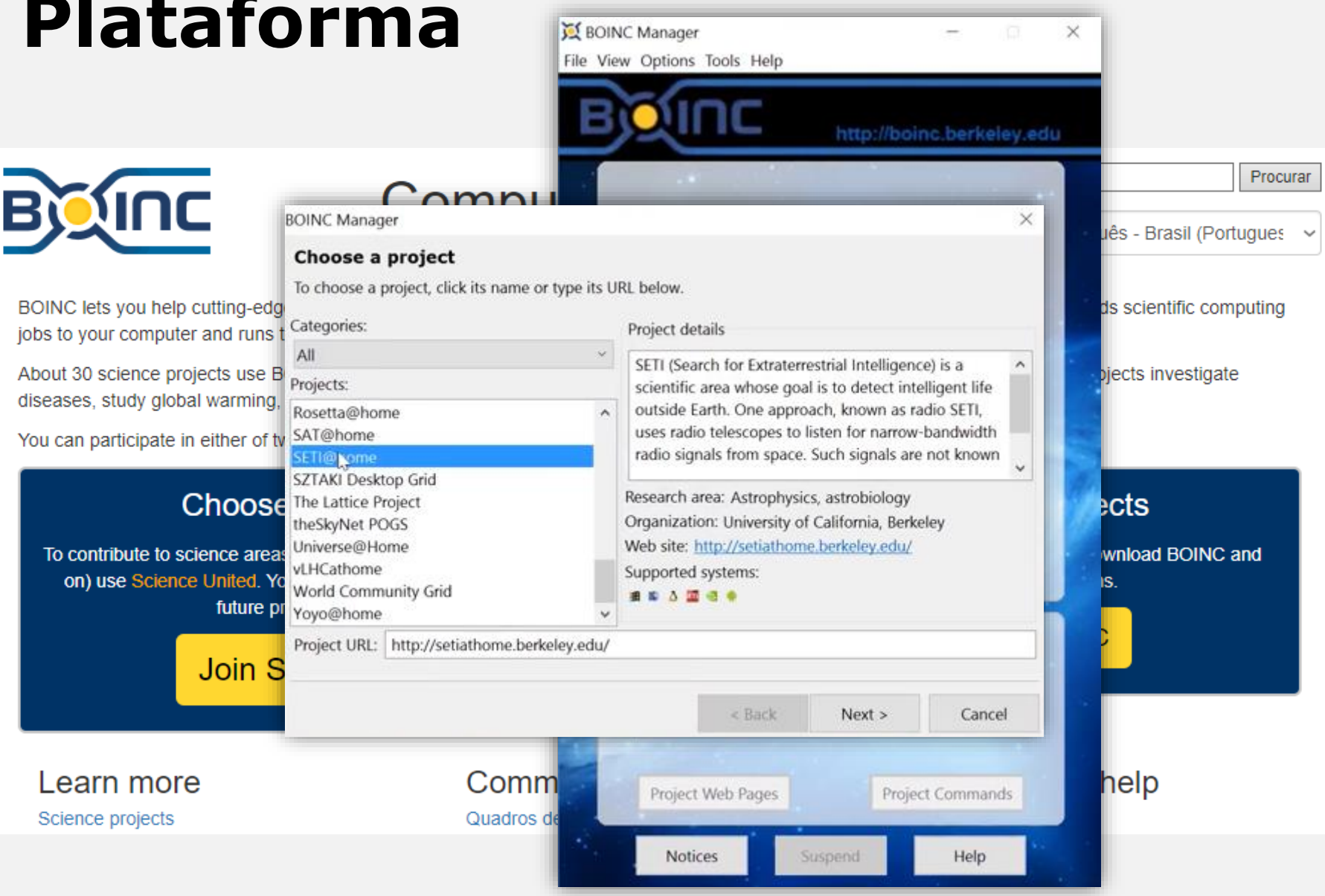
BOINC Manager
File View Options Tools Help
http://boinc.berkeley.edu
Choose a project
To choose a project, click its name or type its URL below.
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All
Projects:
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SAT@home
SETI@home
SZTAKI Desktop Grid
The Lattice Project
theSkyNet POGS
Universe@Home
vLHCathome
World Community Grid
Yoyo@home
Project details
SETI (Search for Extraterrestrial Intelligence) is a scientific area whose goal is to detect intelligent life outside Earth. One approach, known as radio SETI, uses radio telescopes to listen for narrow-bandwidth radio signals from space. Such signals are not known
Research area: Astrophysics, astrobiology
Organization: University of California, Berkeley
Web site: http://setiathome.berkeley.edu/
Supported systems:
Project URL: http://setiathome.berkeley.edu/
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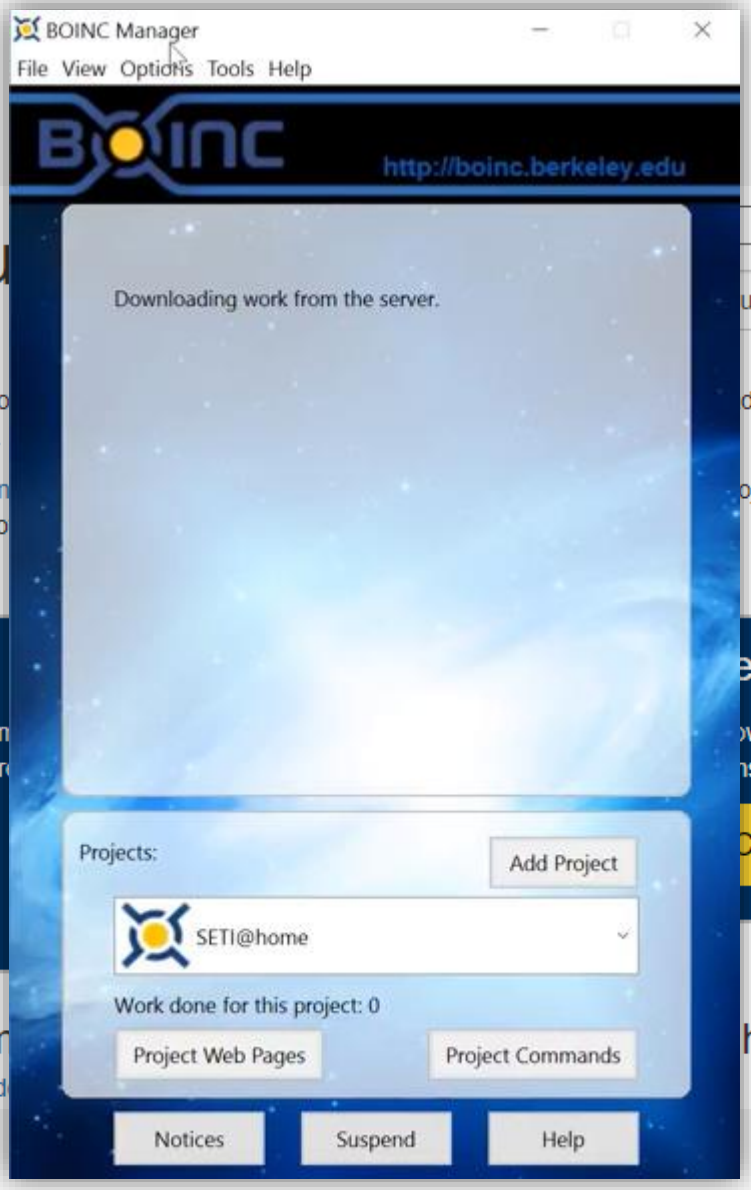

BOINC

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uês - Brasil (Portugues

BOINC lets you help cutting-edge science research using your co
jobs to your computer and runs them invisibly in the background.

ds scientific computing

About 30 science projects use BOINC; examples include Einstein
diseases, study global warming, discover pulsars, and do many o

ojects investigate

You can participate in either of two ways:

Choose science areas

To contribute to science areas (biomedicine, physics, astronon
on) use Science United. Your computer will do work for curr
future projects in those areas.

Join Science United

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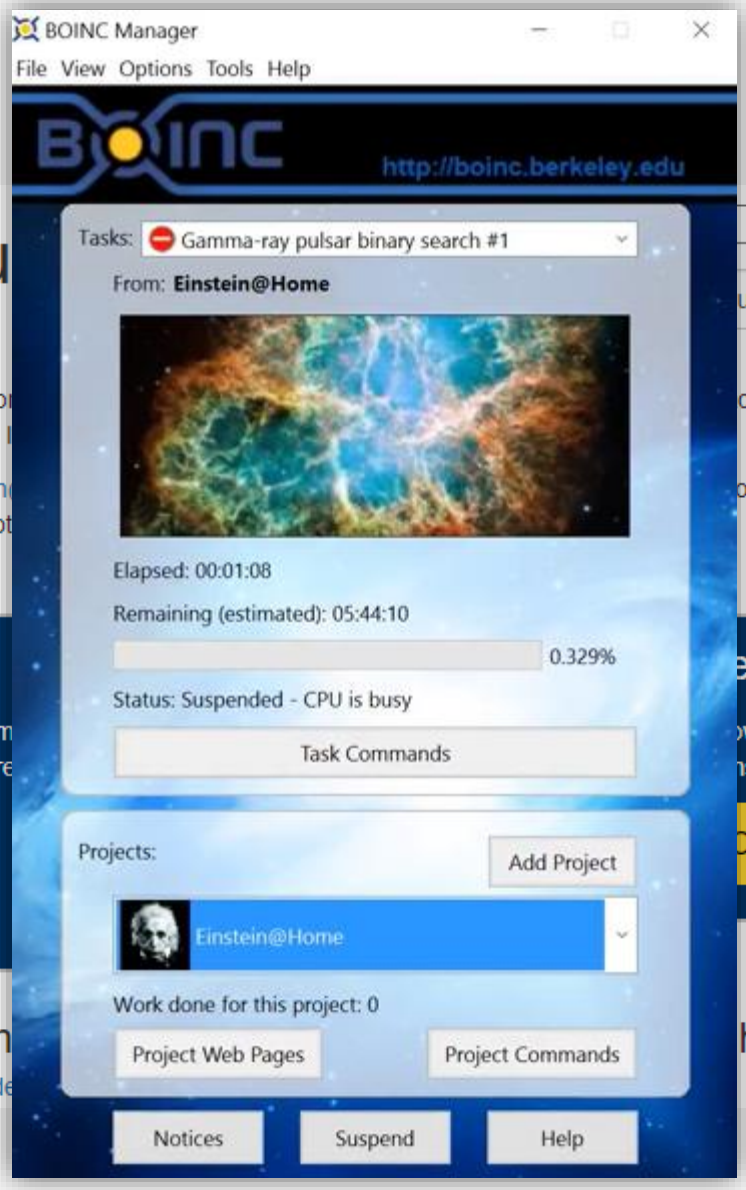

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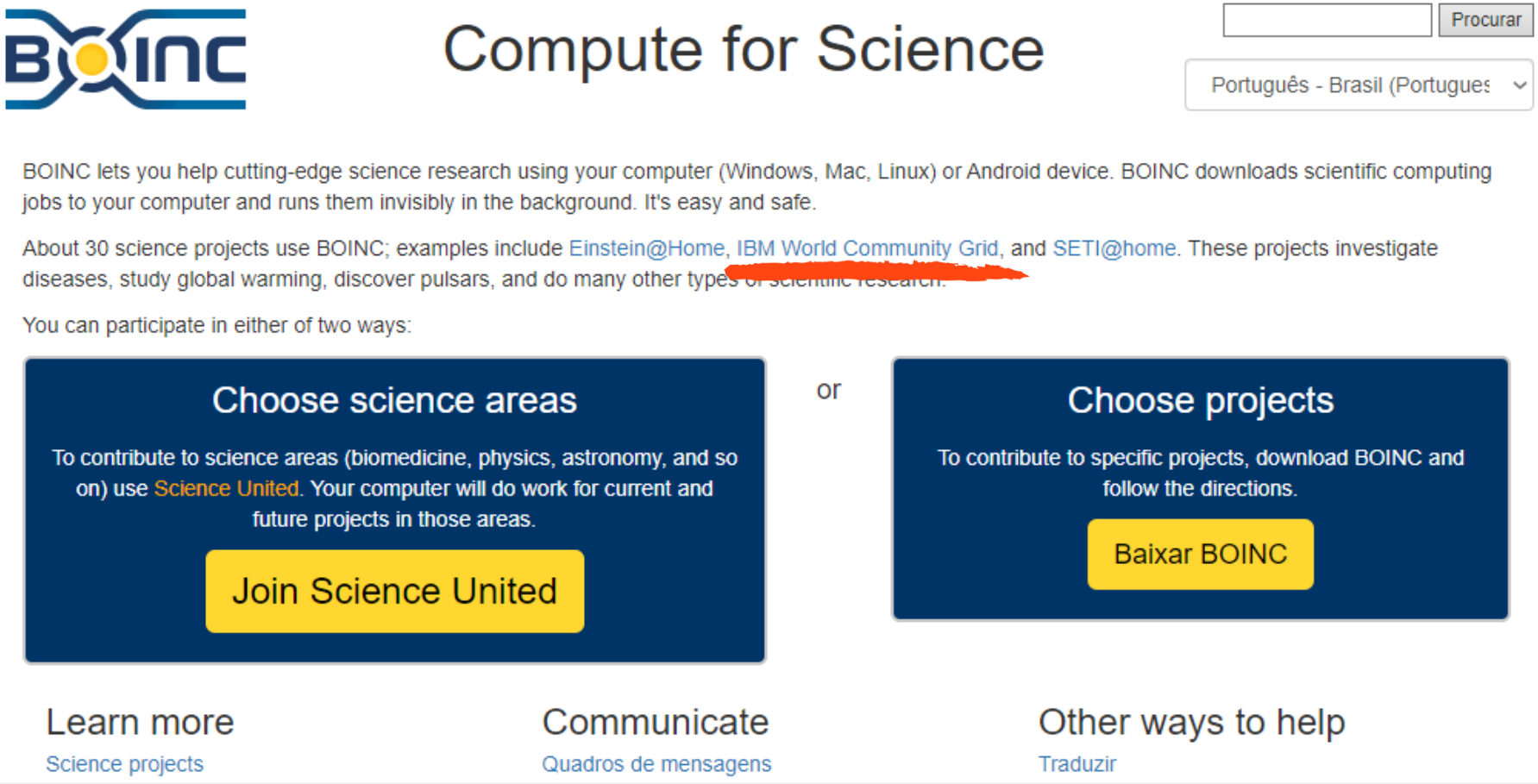

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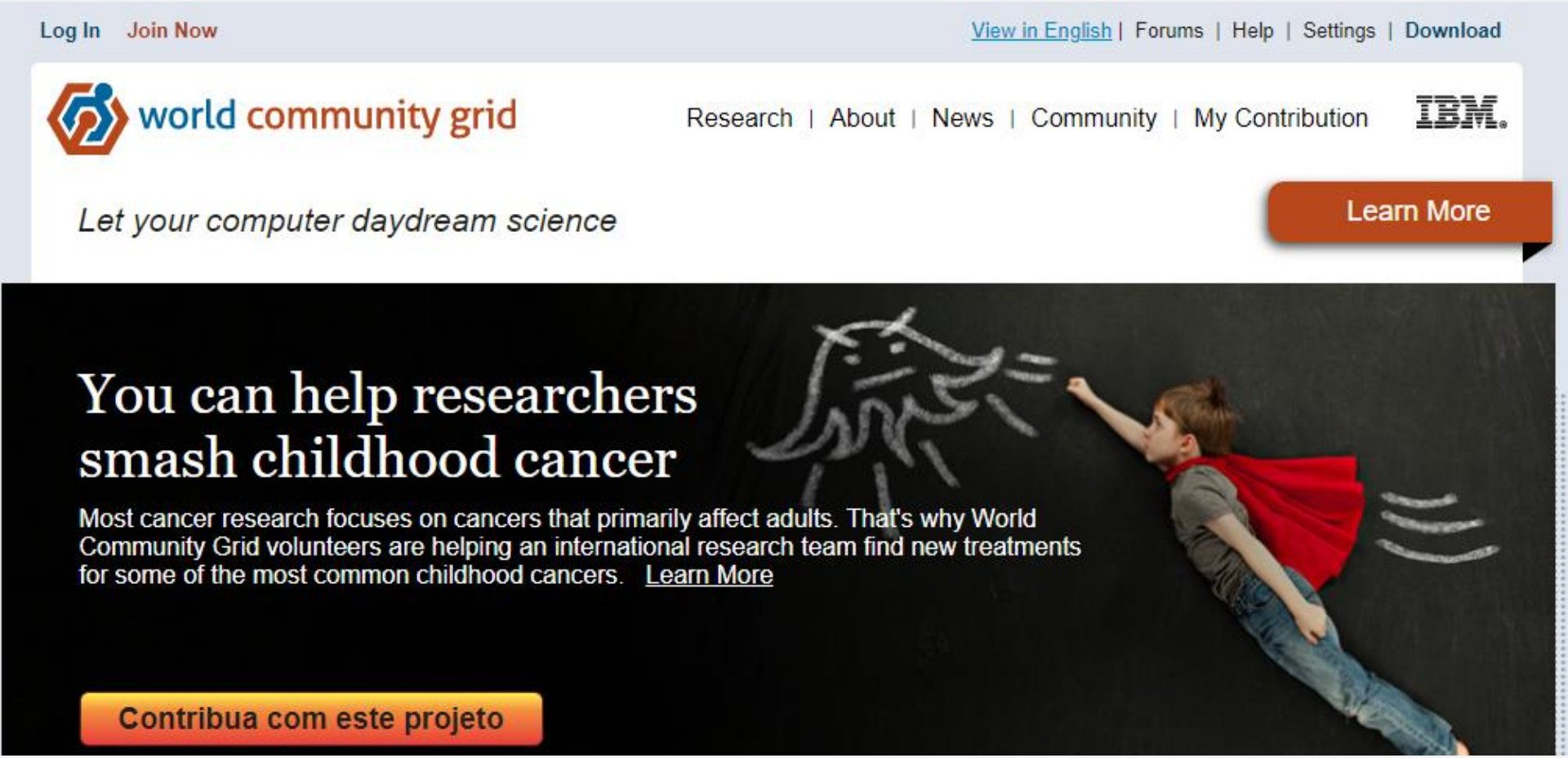

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Aplicação

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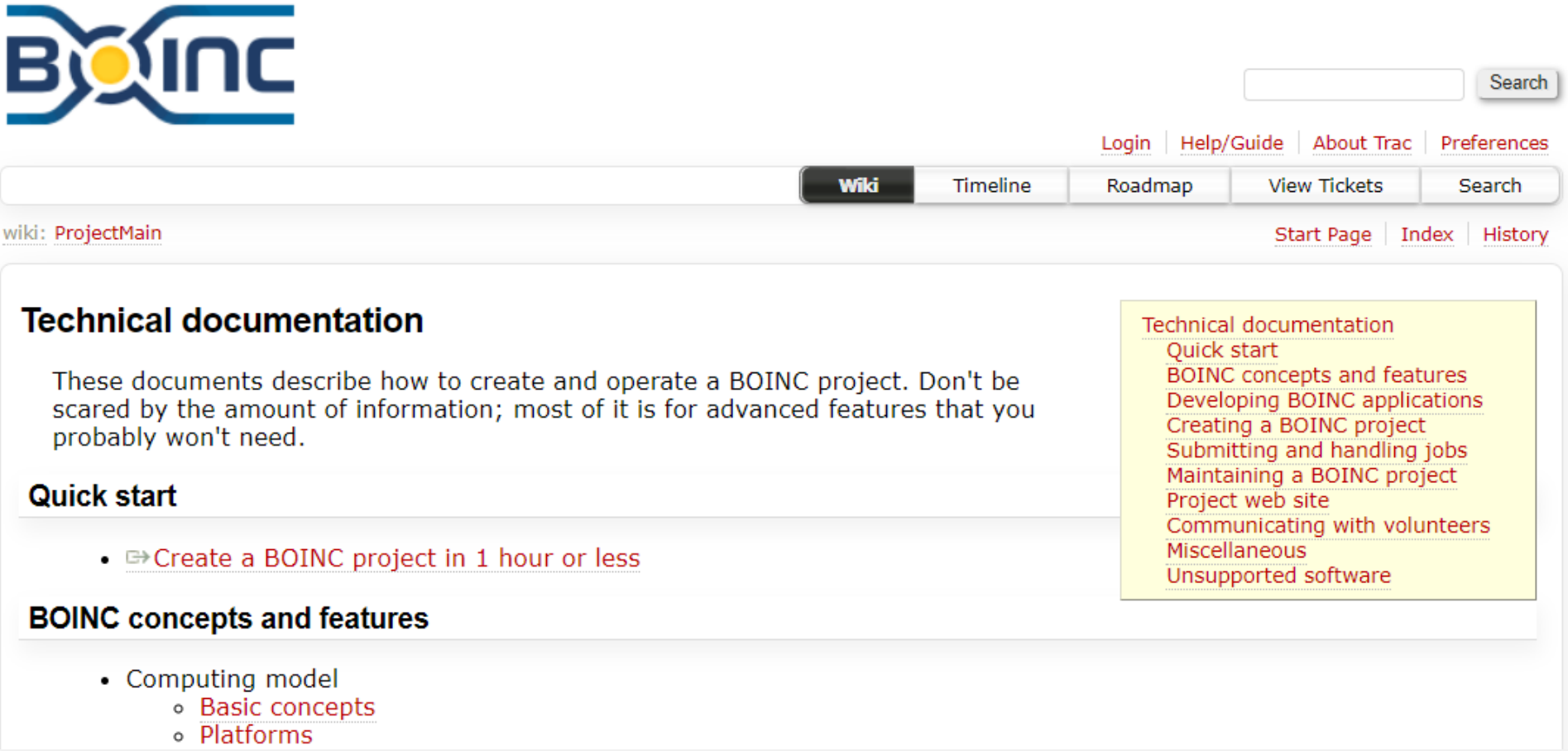
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wiki: ProjectMain
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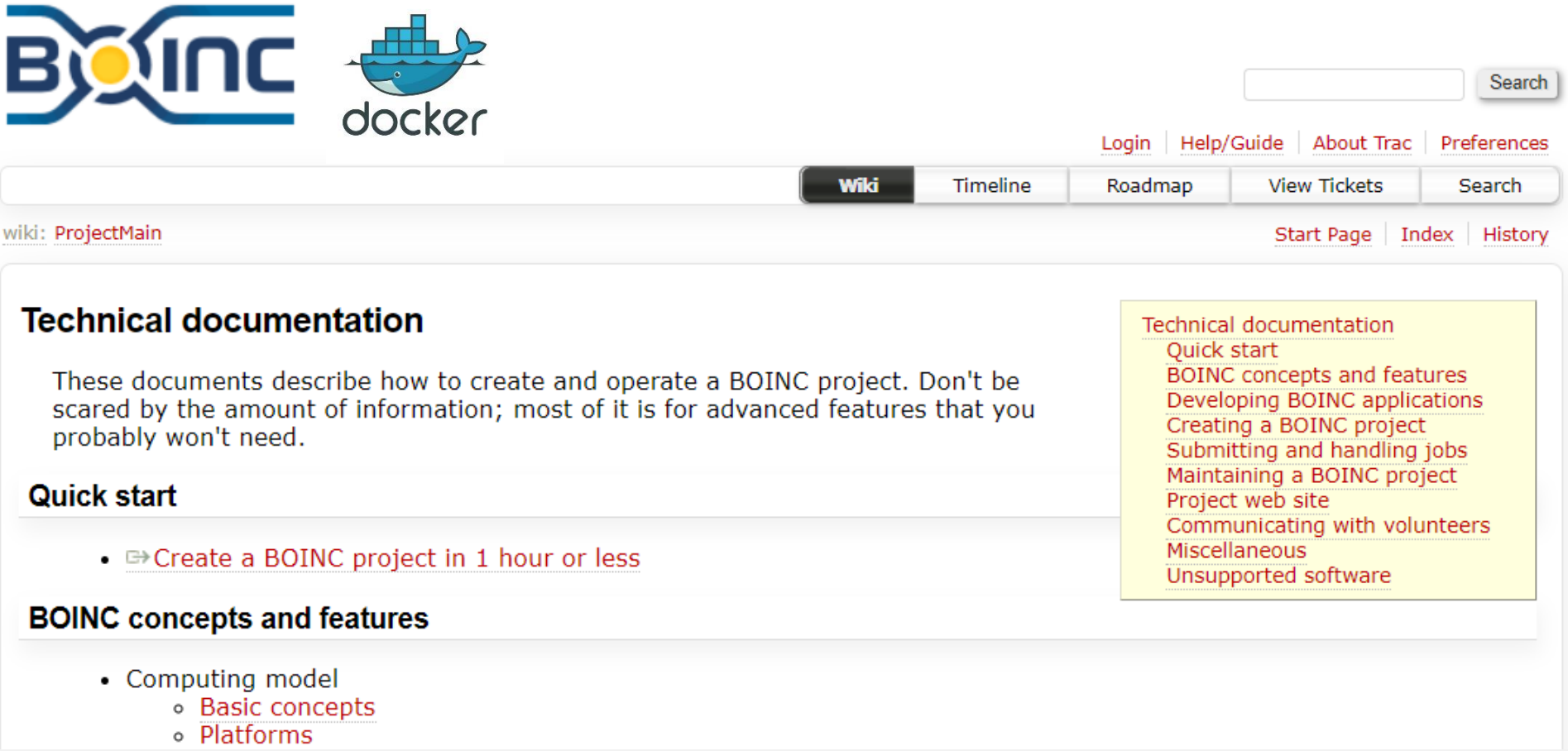
Technical documentation
These documents describe how to create and operate a BOINC project. Don't be scared by the amount of information; most of it is for advanced features that you probably won't need.
Quick start
Create a BOINC project in 1 hour or less
BOINC concepts and features
Computing model
Basic concepts
Platforms
Technical documentation
Quick start
BOINC concepts and features
Developing BOINC applications
Creating a BOINC project
Submitting and handling jobs
Maintaining a BOINC project
Project web site
Communicating with volunteers
Miscellaneous
Unsupported software

Aplicação



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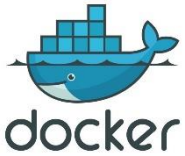

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The BOINC application programming interface (API)

The BOINC API is a set of C++ functions. Most of the functions have a C interface, so that they can be used from programs written in C and other languages. Unless otherwise specified, the functions return an integer error code; zero indicates success. To use the API include the header file:

```
#include "boinc_api.h"
```

BOINC applications may have an associate graphics program, which can act as a screensaver. The API for these graphics apps is here.

Initialization

Initialization must be done before calling other BOINC functions. For

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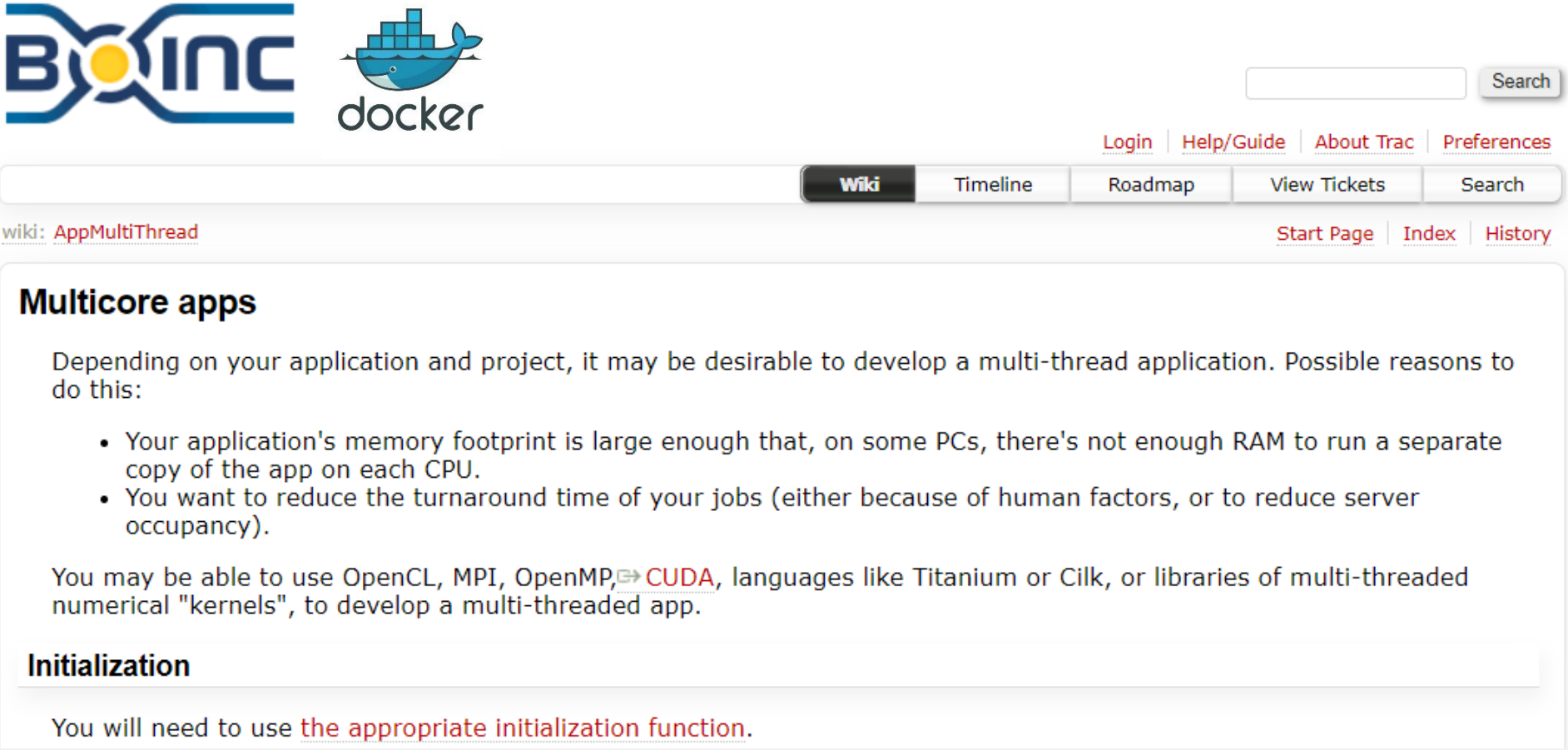

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Conclusão

O BOINC é uma excelente plataforma distribuída de computação voluntária, apresentando desempenho superior a supercomputadores em relação ao paralelismo de dados.

O BOINC é de arquitetura centralizada cliente/servidor. Com toda a comunicação sendo iniciada pelo cliente.

O BOINC é um sistema de middleware para computação voluntária e distribuída especialmente voltado para aplicações do tipo mestre-escravo.

O BOINC é considerado um complemento dos sistemas Grid que suportam a partilha de recursos.

Não gostou? Alternativas:

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Obrigado!

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