Galaxy for Immunological and Infectious Disease Research

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Galaxy PROJECT

NIH National Institute of Allergy and Infectious Diseases

HyPhy

Agenda

- What is Galaxy
  - Galaxy User Interface
  - Ways to access Galaxy
  - Support & Galaxy Ecosystem
- Galaxy for Immunological Research

What is Galaxy? Project's longstanding definition:

Galaxy is an open web-based platform for accessible, reproducible and transparent biomedical analysis.

Galaxy is software, and the gateways that use that software.

galaxyproject.org

What is Galaxy? Keith Bradnam's definition

"A web-based platform that provides a simplified interface to many popular Bioinformatics tools."

from

13 Questions You May Have About Galaxy

bit.ly/13questions

Missing a huge part of the picture

1979-2020

James Taylor, Galaxy PI,
at the *2019 Galaxy Community Conference:*

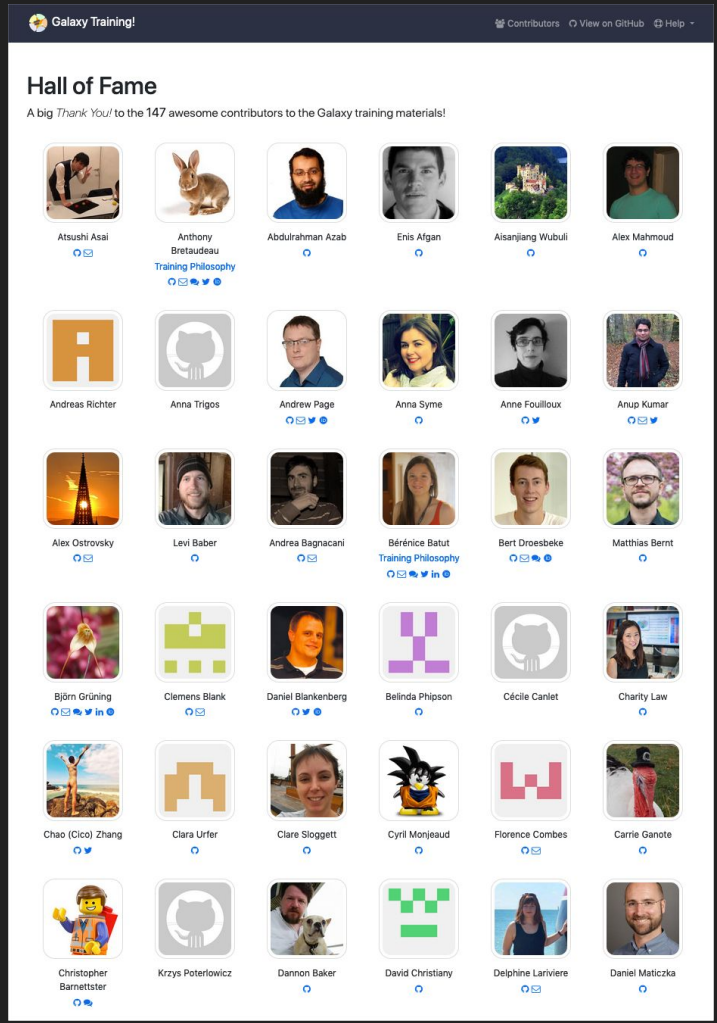
"The most important thing about Galaxy

is this community."

Also see bit.ly/mohey-gcc2019

Galaxy has an enormous and awesome contributor community

- 1,050 Galaxy Help forum accounts in first 13 months of forum
- From BlackDuck Open Hub:
  - Over the past 12 months, 157 developers contributed new code to Galaxy … This is one of the largest open-source teams in the world
- 147 contributors to GTN Library
- *ad infinitum*



Galaxy User Interface

usegalaxy.org

Ways to use Galaxy

- Publicly Accessible Servers
- Academic / Research Clouds
  - Jetstream
- Containers & VMs
- Commercial Clouds
- Local Installs

Galaxy Platform Directory

Galaxy Platform Directory: Servers, Clouds, and Deployable Resources

This directory lists platforms where you can use or deploy your own Galaxy Server with minimal effort.

- *Almost all of them are free to use (Commercial clouds are the exception)*
- *Almost all of them are open to everyone (Academic clouds are the exception).*
- *All of the resources can be used, either immediately, or shortly after getting an account.*

These resources cover a wide spectrum of domains all across life sciences. There are resources for genomics (lots of them), metagenomics, transcriptomics, proteomics, drug discovery and even some outside biology like natural language processing (a couple of them), and social science.

UseGalaxy | All | Public Servers | Academic Clouds | Commercial Clouds | Containers | VMs

All Resources

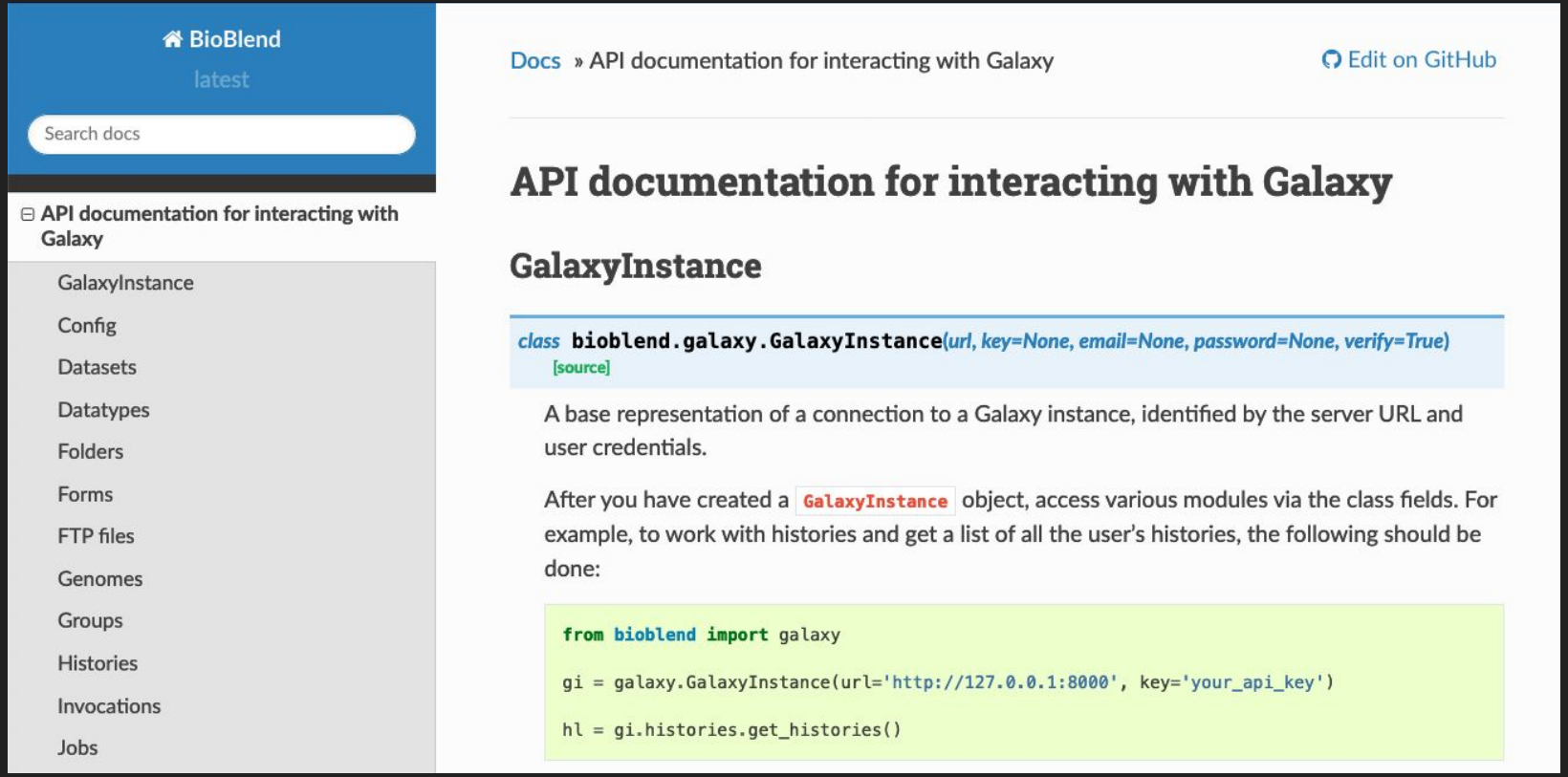
Complete listing of resources for using Galaxy.

Show 20 entries Search:

Resource	Server	Cloud	Deploy- able	Summary	Keywords
AB-OpenLab	Server			FROG stands for FingeRprinting Ontology of Genomic variations. FROG fingerprints have	Tools

galaxyproject.org/use

Ways to use Galaxy: Programmatically with BioBlend



bioblend.readthedocs.io

The Galaxy Ecosystem

- Galaxy Training Network: training.galaxyproject.org
- Galaxy Help Forum: help.galaxyproject.org
- Galaxy Gitter channels gitter.im/galaxyproject (+ many more)
- Galaxy Community Hub: galaxyproject.org
  - Events Calendar
  - News and Blog feeds
- 2021 Galaxy Community Conference, Ghent, July
- ...

Galaxy Platforms for Immunology & Infectious Disease Research

- ARIES: Public Health … infectious diseases at human and animal interface
- HyPhy: HIV analysis
- ImmPort: The Immunology Database and Analysis Portal (ImmPort)
- IRProfiler: The Immune Repertoire Profiler
- Mandoiu: Immunogenomics
- MPDS-TB: Tuberculosis
- UGD: MIRRI's Galaxy Server
- VEuPathDB: Eukaryotic pathogens and insect vectors of disease
- VirAmp: Virus Assembly
- wQAP: Virus quasispecies
- Also used in antibiotic resistance: ARGs-OAP, ARGA

Thank you

Bérénice Batut, GCC2019

Galaxy Community

The literally thousands of people who have contributed Tools, Doc, Support, Training, Resources, Code, Issue Reporting, Testing … over the past 15 years

Steve Tsang

NIAID, NIH, NHGRI, NSF

You