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PIANO NAZIONALE
DI RIPRESA E RESILIENZA



Centro Nazionale di Ricerca in HPC,
Big Data and Quantum Computing

Wp5 Report Status

Dario Gasparrini (INFN Roma Tor Vergata)

Spoke 3 General Meeting, Elba 5-9 / 05, 2024

Scientific Rationale

- **Scope: Managing, maintaining and deploying an integrated environment providing the tools for the efficient development of the work described in the other WPs**
 - **T5.1 Collaborative software development, management and continuous integration platform**
 - **T5.2 Design, implementation and validation of an interoperable service architecture**
 - **T5.3 ML and Visualization enabling services deployment and HPC/Cloud integration**

As shown
in Trieste

Access to the service through a website

More than a website: a real portal for all the activities of Spoke 3. It may include:

- **General description of the Spoke** (public) *Done*
- **News** (public) *Done*
- **Detailed WPs information** (public/reserved) *To be improved*
- **Documentation** (public/reserved) *Link to Google documents*
- **Who is who** (public) *Not yet*
- **Affiliated agreements** (reserved) *Not here - in the docs*
- **SW Repository** (reserved) *Link to github*
- **Interactive analysis Hub** (reserved) *See Diego's Talk*
- ...



<https://icsc-spoke3.inaf.it>



SPOKE 3 IT ASTROPHYSICS & COSMOS OBSERVATIONS

L'high performance computing (HPC) e la gestione dei big data sono strumenti importanti per modellare i complessi sistemi dinamici studiati in astronomia e cosmologia. Il loro uso è fondamentale per le attività di astrofisica e fisica astroparticellare, dalla riduzione e analisi di dati astronomici fino alla loro interpretazione e alla costruzione di modelli teorici e predittivi. La nuova generazione di telescopi e strumenti per l'osservazione spaziale, per esempio lo Square Kilometer Array Observatory (SKAO), il Cherenkov Telescope Array (CTA), i satelliti Euclid e WFIRST, l'esperimento su pallone LSPE, i satelliti LiteBIRD, DAMPE, Fermi e HERD, l'interferometro Einstein Telescope, produrrà in modo esponenziale una quantità di dati maggiore dei loro predecessori e avrà necessità di nuove risorse per il processamento, l'analisi e l'archiviazione di

NEWS RECENTI

International Conference on Machine Learning for Astrophysics
(ML4ASTRO) – Seconda Edizione

28 Mar 2024



Dal 8 al 12 Luglio, Catania ospiterà la seconda edizione dell' International Conference on Machine Learning for Astrophysics (ML4ASTRO2). Lo scopo della conferenza è quella di unire i ricercatori attivamente impegnati nell'applicazione del Machine Learning alle tematiche astrofisiche. ICSC – il Centro Nazionale di Ricerca in High Performance Computing, Big Data e Quantum Computing sostiene e sponsorizza [...]

REPOSITORIES

LINKS TO EXTERNAL REPOSITORIES

This page contains links to software and documental repositories used by Spoke 3

 [Google Drive of Spoke 3](#)

 [Documents Open Access Repository](#)

 [Spoke 3 GitHub](#)



 [Indico meetings page](#)

Github organization repository

- In order to be operative, (no hardware waiting), we have chosen GitHub and set up an organization account
- We are asking to join the organization and add your repositories (just sent to dario.gasparrini@roma2.infn.it your github username)



What we are asking to do?

We are not forcing you to develop in the Spoke3 GitHub (of course you can if you like!)

- You can just clone your repositories here

- Or just upload your script or reference to your code

Just remember to commit a new version after big updates or near milestones

3 repositories

datalake-utils Private

Utility scripts collection for datalake/Rucio integration

● Python • 0 • 0 • 0 • 0 • Updated 19 hours ago

rucio-infrastructure Private

Repository for all the installation reference of the PoC for the datalake

Apache License 2.0 • 0 • 0 • 0 • 0 • Updated 19 hours ago

SRSI Private

● C • 0 • 0 • 0 • 0 • Updated on Jan 24

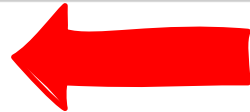
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Open Access Repository

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A DOI is released for every product loaded on the system

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October 9, 2023 (v1) Presentation Open Access [] View []

Graph neural network for track reconstruction in space experiments

Cuna, Federica; Gargano, Fabio; Mazziotta, Nicola;

Development of tracking algorithm with deep learning techniques A range of models inspired by computer vision applications were investigated, which operated on data from tracking detectors in a format resembling images [A deep learning method for the trajectory reconstruction of cosmic rays with the

Uploaded on October 20, 2023

July 27, 2023 (v1) Poster Open Access [] View []

Advantages of GPU-accelerated approach for solving the Parker equation in the heliosphere

Della Torre, Stefano; Cavallotto, Giuseppe; Besozzi, Daniela; Gervasi, Massimo; La Vacca, Giuseppe; Nobile, M.;

The increasing of experimental observations' accuracy and model complexity requires the development of a new class of numerical solvers. In this work, we present a GPU-accelerated approach for solving the Parker equation in the heliosphere using a stochastic differential equation (SDE) appr

Uploaded on October 19, 2023

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Community

SPOKE 3
Astrophysics & Cosmos Observations

Open Access Repository

January 6, 2024

Software Closed Access

dariogaspa/SSDC-fermi: v0.2.0-alpha

dariogaspa

No description provided.

Files

🔒 Closed Access

Files are not publicly accessible.

0

views

0

downloads

[See more details...](#)

Publication date:

January 6, 2024

DOI:

DOI [10.15161/oar.it/143547](https://doi.org/10.15161/oar.it/143547)

Related identifiers:

Supplement to:

<https://github.com/dariogaspa/SSDC-fermi/tree/V>

Communities:

ICSC Spoke 3 - WP5 repository

Versions

Version V [10.15161/oar.it/143547](https://doi.org/10.15161/oar.it/143547)

Jan 6, 2024

Cite all versions? You can cite all versions by using the DOI [10.15161/oar.it/143546](https://doi.org/10.15161/oar.it/143546). This DOI represents all versions, and will always resolve to the latest one.

It could be connected to GitHub and a SW release can have his own DOI, It could be crucial for KPI, reporting, etc..



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Thank you!!