

CREATIS

Medical Imaging Research Laboratory

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INSA

INSTITUT NATIONAL
DES SCIENCES
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 **Inserm**



11^{ème} workshop VIP

27/06/2022

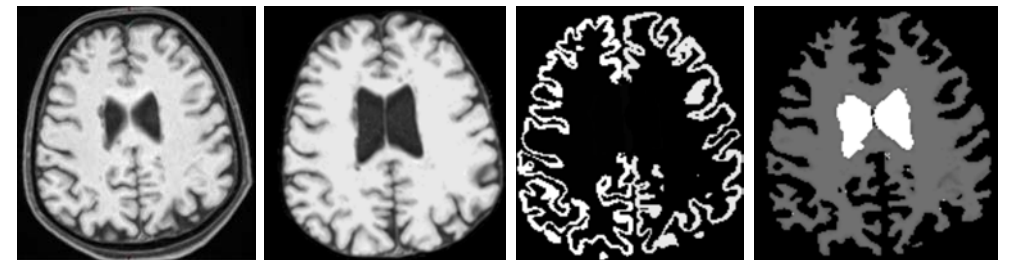


Programme

- Tour de table (10')
- Courte introduction et nouvelles de VIP, par Sorina Pop (10')
- Exécution des pipelines d'analyse disponibles dans VIP depuis l'outil de gestion de données Girder, par Axel Bonnet (20')
- Projet ReproVIP, par Gaël Vila (20')
- Reproductibilité avec VIP dans le cadre de segmentation de tumeurs de la base du crâne, par Morgane Des Ligneris (20')
- Table ronde et discussions : comment est-ce que VIP peut vous aider dans la reproductibilité de vos travaux scientifiques ? (30')
- Divers (10')

What VIP provides

- Scientific applications as a Service
 - More than 20 applications publicly available
- Transparent access to computing resources
 - 395 CPU years (EGI biomed VO) used in 2019-2020
- Large community
 - More than 1300 registered users
- Open and reproducible science
 - Zenodo, DOIs, Containers, Boutiques



Example of white/grey matter brain segmentation with [Freesurfer](#) on VIP
Credits : Bernardino Barile and Dominique Sappey-Mariniere, Creatis

Turning scientific applications into services

- Integrate a new application in VIP in 3 main steps
 - Build a Docker or Singularity image containing the scientific application
 - Create a [Boutiques](#) descriptor of the application
 - Send them to the [VIP team](#)

- Boutiques 
 - Describe, publish, integrate and execute applications **across platforms**
 - <https://github.com/boutiques>

- VIP in the EOSC market place
 - <https://marketplace.eosc-portal.eu/services/virtual-imaging-platform/>

Findable

1. Globally persistent records
2. Described with rich metadata
3. Searchable

We leverage **Zenodo [2]** to create DOIs for Boutiques descriptors which can be accessed via the Zenodo API.

Interoperable

1. Formalized and shared metadata standard
2. Metadata standards adopted are FAIR
3. Linking between objects where appropriate

CARMIN [3] and **Boutiques [4]** standards are used to describe and launch tools, either locally or through a RESTful API.

Accessible

1. Easily retrievable
2. Universal access
3. Persistent metadata beyond data lifetime

The retrievable tool descriptions contain **immutable** human- and machine-readable instructions for testing and launching each tool.

Re-Usable

1. Multiple accurate and relevant attributes
2. Clearly licensed
3. Meets minimum domain standards

Docker [5] and **Singularity [6]** virtualization enable re-runability across platforms and enclosed testing. Simulation and querying allow runtime evaluation.

FAIR tools. Credits: Gregory Kiar and Tristan Glatard

People

■ VIP core team

- Sorina Pop, IR CNRS
- Axel Bonnet, IR CNRS
- Frédéric Cervenansky, IR Université



Sorina Pop



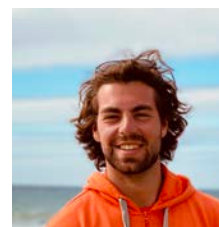
Axel Bonnet



Frédéric Cervenansky

■ Currently working with us

- Alexandre Cornier, CNRS engineer, EGI ACE project
- Sandesh Patil, INRIA engineer, FLI IAM project
- Gaël Vila, CNRS postdoc researcher, ANR ReproVIP



Alexandre Cornier



Sandesh Patil



Gaël Vila

■ Creatis research teams' members

- All Creatis teams were represented by at least one person
- See meeting reports at <https://www.creatis.insa-lyon.fr/site7/fr/vip>

■ External collaborations

- Tristan Glatard, Associated Professor at Concordia University, Montreal



Tristan Glatard

Most used applications in VIP in 2021

- MicroVIP: 400+ executions and 26 users (tutorial)
- GateLab: 300+ executions and 19 users
- Freesurfer: 100+ executions and 10 users
- Coil Characterization: ~60 executions and 6 users
- MICCAI MSSEG2 Challenge Pipelines
 - 31 pipelines executed on train and test challenge data (100 patients)

Divers

- Tutoriel VIP – conférence imagerie médicale
 - Avez-vous des idées ? Des applications à présenter ?
- Hackathon
 - Initialement orienté neuro, mais les objectifs exacts restent à définir