Inria

Inria Associate Teams programme

Intermediate Report 2018 – 2019
(max 2 pages)

Associate Team acronym: ReDaS
Period of activity: 2019
Principal Investigator (Inria): Guillaume Huard (Polaris)
Principal investigator (Partner Institution): Lucas Mello Schnorr (UFRGS)

1 Future of the Associate Team

Would you like to pursue this Associate Team for one more year?   ☒ Yes   ☐ No

2 Website of the Associate Team

`https://associatedteam.gitlabpages.inria.fr/redas`

3 List of participants

Name	Team	Status	Main expertise
Guillaume Huard	INRIA	Associate Professor	Performance evaluation
Jean-Marc Vincent	INRIA	Associate Professor	Statistics & Perf. Evaluation
Arnaud Legrand	INRIA	Researcher	Reproducible Research
Lucas Mello Schnorr	UFRGS	Adjunct Professor	Performance Evaluation
João Comba	UFRGS	Associate Professor	Information Visualization
Alexis Janon	Polaris	PhD Candidate	HW Counters Co-Design
Tom Cornebize	Polaris	PhD Candidate	Data Analytics for HPC
Vinicius G. Pinto	UFRGS	Postdoc	Task-based Performance Analysis
Lucas Nesi	UFRGS	PhD Candidate	Task-based Performance Analysis
Marcelo Miletto	UFRGS	Master student	Sparse Task-based Performance Analysis
Guilherme Alles	UFRGS	Master student	Phenology analysis

4 Achievements and Planned activities

Due to the COVID-19 situation, several travels that had been planned for the last year did not happen. Nevertheless, despite this difficult situation, the exchanges between the participants remain active and the common work that were planned has been pursued :

- Guillaume Huard and Alexis Janon have been to UFRG from 26th of november 2019 to respectively the 10th (G. Huard) and the 15th (A. Janon) of december. They have worked with Lucas Schnorr to setup an experimental workflow in order to work on the Ondes3D application. The objective was to collect low level metrics (hardware counters) combined with higher level events (application phases) in order to identify cache issues during the execution. By the end of the stay, preliminary work to automate the experiment setup, deployment, execution and collect has been validated on Ondes3D and a first batch of results has been studied.

Activities of the associated team have started late in 2019 for two reasons : the funding has not been available before the end of February and the respective schedules of the partners have evolved since the submission of the proposal. Nevertheless, exchanges have started and all the french researcher involved in the associated team have started collaborative activities :

- Arnaud Legrand has been at UFRGS from the 6th to the 15th October 2019. During this period, he has given the SMPE class (Scientific Methodology and Performance Evaluation) for 10 enrolled students, as well as five other persons (professors, unenrolled students). Furthermore, during this visit, Arnaud Legrand has worked with Lucas Mello Schnorr and his students on the analysis techniques axis. He also supervises three Brasilian students : Lucas Leandro Nesi (PhD candidate, with a co-tutelle agreement to be written), Marcelo Miletto (Master student), and Vinicius Garcia Pinto (post-doc).

- Vincent Danjean is expected to come at UFRGS from the 26th to the 1st of November 2019, where he will work with Lucas Mello Schnorr, Vinicius Garcia Pinto (post-doc) and Henrique Corrêa Pereira da Silva (undergraduate student) on parallel application traces collection and analysis, especially using the OpenMP runtime.

- Guillaume Huard and Alexis Janon (french PhD candidate) will come at UFRGS by the end of November 2019 to work with Lucas Mello Schnorr on applications traces analysis, reproducible workflows setups based on R and performance modeling of both hardware and software components.

- Arnaud Legrand will receive the visit of Lucas Leandro Nesi (brasilian PhD student) in Grenoble during the month of November 2019. Their common work is expected to lay the ground that will serve as a basis for the establishment of a co-tutelle agreement between UGA and UFRGS for his thesis.

- Arnaud Legrand and the Polaris team will receive the visit of Phillipe Olivier Alexandre Navaux (Professor) in Grenoble between November 26th and December 3rd, 2019, funded by the FAPERGS project leaded by Lucas Mello Schnorr in the Brazilian side. Navaux is expected to have scientific and technical meetings with both people from Polaris and Datamove team.

- Jean-Marc Vincent has visited UFRGS several times during the past years and is actively working with Lucas Mello Schnorr and Guilherme Alles (master student) on phenology visualization and analysis. This work is also supported by Joao Comba and Shin Nagai, a Japanese researcher (phenology specialist). An article on this topic has been written and will be submitted soon to a journal for peer reviewing. It presents results about a mathematical model for phenology analysis and a reproducible parallel workflow.

In 2020, we expect visits in Grenoble of Lucas Mello Schnorr and at least one PhD or master student from UFRGS to continue the collaboration. These visits shall be funded by the FAPERGS project coordinated by Lucas Mello Schnorr. If the CAPES/Cofecub project is renewed, Joao Comba is also expected to visit Grenoble next year to collaborate with Jean-Marc Vincent and Sihem Amer-Yahia.

5   Budget request for the coming year

Description	Budget
3 air tickets (1200€ each)	3600 €
1-month accomodation expenses in France (for a Brazilian PhD student)	1600 €
33 accommodation expenses for one person in Brazil (112 € per day)	3696 €
Workshop organization	1200 €
TOTAL FOR EVERY YEAR	10096 €

To support this french-brasilian collaboration, additional funding in France has been granted by the *Université Grenoble-Alpes*. In Brazil, the Brazilian coordinator has been involved in a project proposal for CAPES/Brafitec (decision expected by December 2019) and got approved a cooperation project with FAPERGS (the Rio Grande do Sul research funding agency) for 3-years 2019-2021 using a similar title: "Reproducible Data Science: Analysis Techniques and Workflow Methodologies". The renewing request of the CAPES/Cofecub project "Group Formation, Analysis, and Visualization in Big Data", led by Joao Comba, has already been submitted (decision expected by December 2019).

Currently, the associated team is our main funding solution on the precise research theme of reproducible data science. Nevertheless, our members stay alerted about Brazil-Europe calls that could be used to get extra funding to support our research.