

High Performance Computing & Big Data Services

 hpc.uni.lu

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 [@ULHPC](https://twitter.com/ULHPC)

LU  **EMBOURG**
LET'S MAKE IT HAPPEN

HIGH PERFORMANCE COMPUTING SCHOOL 2021

Nov 12th - 19th, 2021
Maison du Savoir, Belval

Information and Registration
hpc.uni.lu/education/hpcschool

Belval Campus
University of Luxembourg
Nov 12-19, 2021
8:30am - 12:30pm every day

- 6 days
- 12 practical sessions
- 3 keynotes

The UL HPC team, together with leading computational scientists of the UL and HPC technologists will offer instructions and practical sessions on a variety of topics, including:

- Access to and interaction with the UL HPC infrastructures

- Monitoring, Debugging & Profiling, Performance Engineering
- HPC workflow management (for sequential and parallel tasks)
- HPC programming and usage of the main software available on the platform, with dedicated sessions directed towards Scalable Science (OpenMP/MPI), GPU

- trainings (CUDA programming, Neural Networks), R, Python, Big Data analytics, Deep and Machine learning etc.
- Virtualisation with Singularity containers on the clusters
- **(new)** Introduction for novice to UNIX/Linux Shell

Agenda

UL HPC School 2021 Agenda

PS: Practical session
[target audience]

* Due to COVID regulation, physical seats in the booked rooms are highly limited and restricted

Friday, November 12, 2021			WebEx + MSA 2.130*
Sessions Objectives : Introduction to UNIX/Linux Shell and Command lines			Speaker(s)
08:30 - 09:00	Remote setup and registration		
09:00 - 10:45	PS1 [beginners]	Preliminary: Shell setup on your local Laptop (Windows, Mac OS, Linux) Introduction; Navigating Files and Directories	T. Vallette, A. Olloh
10:45 - 11:00	BREAK		
11h00 - 12:30	PS1 [beginners]	Working With Files and Directories Pipes and Filters Loops	T. Vallette, A. Olloh
12:30 - 14:00	LUNCH		
14:00 - 15:30	PS1 [beginners]	Shell Scripts Finding Things Concluding remarks	H. Cartiaux

Monday, November 15, 2021			WebEx + MSA 2.240*
Sessions Objectives : ULHPC Ecosystem Overview; HPC Access Setup			Speaker(s)
08:30 - 09:00	Remote setup and registration		
09:00 - 10:30	Keynote	Welcome Overview and Challenges of the UL HPC Facility at the EuroHPC Horizon	S. Varrette
10:30 - 11:00	BREAK		
11h00 - 12:30	PS2 [beginners]	Preliminaries (SSH - OpenOnDemand)	T. Valette, A. Olloh

Tuesday, November 16, 2021			WebEx + MSA 2.240*
Sessions Objectives : Getting Started on ULHPC			Speaker(s)
08:00 - 08:30	Remote setup and registration		
08:30 - 10:15	PS3 [beginners]	Getting Started 2.0 Introduction to the SLURM Job Scheduler, basic launchers	H. Cartiaux
10:15 - 10:30	BREAK		
10h30 - 11:30	PS4 [intermediate]	HPC Management of Sequential and Embarrassingly parallel jobs	S. Varrette
11:40 - 12:30	PS5 [advanced]	HPC Software Building: optimizing and complementing the ULHPC software set	S. Varrette

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Wednesday, November 17, 2021		WebEx + MSA 3.330*
Sessions Objectives : Python, AI and Machine Learning		Speaker(s)
08:00 - 08:30	Remote setup and registration	
08:30 - 10:00	PS6 [beginners] Prototyping with Python	S. Peter
10:00 - 10:15	BREAK	
10h15 - 11:00	PS7 [intermediate] HPC Containers with Singularity	E. Kieffer
11:10 - 12:45	PS8 [advanced] Advanced distributed computing with Python	E. Kieffer

Thursday, November 18, 2021		WebEx + MSA 3.200*
Sessions Objectives : Scalable Science and Parallel Programming		Speaker(s)
08:00 - 08:30	Remote setup and registration	
08:30 - 09:50	PS9 [advanced] Scalable Science with OpenMP/MPI	S. Varrette
10:00 - 10:45	Keynote Advanced Performance Engineering for Efficient Parallel Debugging	X. Besseron
10:45 - 11:00	BREAK	
11h00 - 12:45	PS10 [advanced] Introduction to GPU programming with OpenACC and OpenCL	E. Ezhilmathi, L. Koutsantonis, T. Pessoa

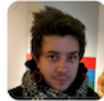
Friday, November 19, 2021		WebEx + MSA 4.150*
Sessions Objectives : Statistical Computing and Big Data Analytics		Speaker(s)
08:00 - 08:30	Remote setup and registration	
08:30 - 10:00	PS11 [intermediate] R - statistical computing	A. Ginolhac
10:00 - 10:15	BREAK	
10:15 - 11:15	Keynote Data management (backup, security, ...)	S. Peter
11:25 - 12:30	PS12 [intermediate] Big Data Analytics: Batch, Stream and Hydrid processing engines	S. Varrette
12:30 - 12:45	Closing Remarks / Take Away messages	

Contributors



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Dr. Sebastien Varrette
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... and additional help (Survey, session tests)



Arlyne Vandeventer
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UL HPC School Information and Registration
hpc.uni.lu/education/hpcschool

UL HPC Technical Documentation
hpc-docs.uni.lu

UL HPC Tutorials
ulhpc-tutorials.readthedocs.io