Contribution ID: **16** Type: **Talk**

Harnessing consumer grade GPU hardware for the automation of annotation processes in hydrographic data –examples from the ValidITy project

Thursday 4 April 2024 15:55 (15 minutes)

While GPU computing has been widely used in science through the Tensorflow and Torch frameworks, and in specialized HPC applications, software that runs on end-user-devices often does not yet use these technologies.
In this presentation, we show how we used OpenGL compute shaders to accelerate key features of the software developed in the ValidITy project (https://validity-project.eu) to implement a user-friendly workflow for feature detection in gridded bathymetric data. We will explain how geomorphometric derivatives can be computed in near-real-time and show that implementing a neural network from scratch does not need to be a daunting task - even if the will need to be executed on low-powered laptop devices.

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Session Classification: Session 2: Data Quality and HPC for Data Science

Track Classification: Data Quality and HPC for Data Science