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WorDeL language – Tutorial on flexible description of Earth observation data processing

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The main issues of Big Data in Earth Observation (EO) domain are the volume and velocity of data acquired by an increasing number of aerial and space-borne sensors, but as well the complexity of data mining process. The sheer volume and acquisition rates may threaten to overwhelm many organizational storage capabilities, leading to situations in which data value is overtaken by storage costs, which will, in turn, lead to loss of data. Data can create value only when it is used, and the data protection has to be oriented toward allowing innovation that sometimes depends on creative people, which achieve unexpected valuable results through a flexible and adaptive manner. The users need to describe and experiment themselves different complex algorithms through analytics in order to valorize data. The analytics uses descriptive and predictive models to gain valuable knowledge and information from data analysis. This tutorial aims to exemplify some of the main features of WorDeL (Workflow Description Language), and demonstrate their usage in defining Earth Data processing tasks. The WorDeL language is based on the flexible description of processing tasks as workflows, composed of basic processing operators. With this approach, the language offers an intuitive way of representing processing tasks, without requiring programming expertise from its users. It also allows its users to employ and integrate existing functionality into their design, thereby reducing the complexity and development effort of newly defined processing workflows.

Biography

Dorian Gorgan is a Professor in Computer Science Department of the Technical University of Cluj-Napoca, PhD supervisor in Computers and Information Technology, and coordinator of the Computer Graphics and Interactive System Laboratory. The fields of interest involve parallel and distributed processing over HPC infrastructures such as Grid, Cloud, Multicore, and cluster, development of platforms and applications for spatial data processing and visualization, interdisciplinary research in the domains of Earth Sciences and Earth Observations. He has been involved as scientific coordinator and WP leader in national and international research projects such as BIGEARTH, PECSA, enviroGRIDS, IASON, SEE-GRID-SCI, GiSHEO, mEducator, iTRACE, MedioGrid, COMPLEXHPC, and KEYSTONE. He has been member of scientific and reviewing committees of many ISI Journals and international conferences, and gave more than 300 papers and presentations in journals and prestigious conferences in the domains of Computer Science and Earth Observation.

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