

# **A Virtual platform of Remote Sensing Image Processing Grid-based**

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## **BIOGRAPHY**

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## **INTRODUCTION**

Remote Sensing (RS) technology, as an important approach and instrument for people to acquire the abundant information, has developed so quickly in recent years, and will be seen more and more important in all fields including science research, military applications and civil applications, etc. However, with the improvement of technology of acquirement on Remote Sensing image data, more and more tremendous, distributed image data and processing algorithms resources can't be used efficiently because of the amount of data and information, and the difficulty of duplication and transferring through network. Remote Sensing processing system has faced so many problems, which are more complex than what we had ever solved. In a word, there are three key problems as follows: 1), the algorithms have relativity to remote sensing image processing, not common. In other words, while some algorithms are adapt to the metal objects to be processed effectively, it maybe not well to building objects, and vice versa So, there is no common algorithm for all kinds of objects' properties, and none of computer or soft system will be integrated all algorithms on remote sensing image processing. 2), how to share the algorithms and image data resources generally, to take clear of the "information lonely island", and to decrease the work of developing and programming. 3), the remote sensing image data increases at the speed of TB level per day. Although, it provides plenty of and important referenced information, we can't process these image data real-timely, fast and accurately on our centralized and traditional system. In order to solve the problems above, besides the improvement of the computer hardware and image processing algorithms itself, the key point lies in changing of the centralized and traditional system architecture.

## **CURRENT DEVELOPMENTS**

Fortunately, Grid Computing as a method, technology and science, takes bright future to us. It can integrate and share any distributed, heterogeneous, dynamic resources on LAN and/or WAN. In order to integrate the distributed and heterogeneous image processing resources and processing ability, we design a virtual processing platform using registry mechanism which refers the mind of Grid Computing and distributed computing architecture including CORBA, COM/DCOM, RMI and others,

to suffice the remote sensing image processing that has various, distributed processing algorithms and so huge quantity of image data and information. Meanwhile, according to our current research works, the efficiency of web services and other reasons, a prototype system has been implemented and built based on middleware, JSP/Servlet, XML, Database and other technologies. In the paper, from the discussion of the problems faced in remote sensing image processing, we analyze some key solutions. Moreover, we also introduce and analyze the architecture, logical model and running workflow of the prototype system. After that, through an example about OTSU algorithm running in the prototype system, we give out the key points of implementation details. At last, we conclude our work and plan the next step what to do.

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