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Towards the environment for mass-collaboration for software synthesis

Siauliai University, Faculty of Mathematics and Informatics have more than 5 years of the scientific distributed computing experience. The grid technologies are investigating in the following directions:

- **Interoperability of the e-learning and distributed computing systems**

(In cooperation with the *SU Distance Learning Center*).

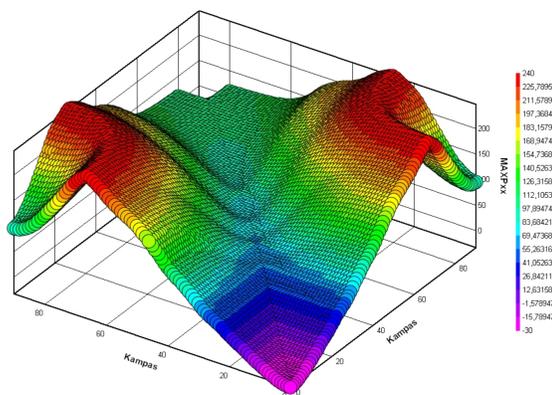
- **Numerical modeling and investigation of systems.**

Modeling of temperature, stability and optimal design of constructions (shells, plates, sticks) is investigated. New technology of numerical modeling of constructions of composite materials using grid and cloud computing is being developed.

- **Software synthesis for the distributed computing systems.**

The synthesis distributed software to solve scientific problems of the numerical modeling and optimisation of the systems.

On the umbrella of third research direction new project at *Siauliai University* is **started** from the **October 1 of 2010's**.



The dynamics of critical forces on two-layered cylindrical shell in impact of combine forces.

The main goal of this project is **to develop the environment for scientific software synthesis using grid, cloud and wiki-oriented technologies.**

We are stating the hypothesis that using together wiki-based technologies, software synthesis methods and the power of grid/cloud infrastructure scientific software can be developed more rapidly and the quality of the software will be better. The project consist of three main stages:

1. The development of the portal for the wiki-based mass-collaboration. This portal will be used as the UI enabling scientists to specify the problems for software development, to rewrite/refine the specifications and software artifacts given by other researchers, to contribute all software developing for particular domain process

As the target domain for software development we have chosen **the set of statistical simulation and optimization problems**. In the future the created **environment can be applied to other domains**.

2. The development of the model of "bridge" between wiki-based portal and the *LitGrid* or other grid/cloud-based infrastructure.
3. To refine existing methods for software synthesis using the power of distributed computing infrastructures.

The results of the project will have direct positive impact in the scientific software development, because of bridging two technologies, each of them promise good performance. The power of Wiki-technologies will ensure the ability of the interactive collaboration on software developing using the terms of particular domain. On the other hand the bridge of new environment and the grid/cloud infrastructure will give the possibility to use all power of distributed computing infrastructures.

We are looking for the international partners for this research and any collaboration and contributions are welcome.