CZECH REPUBLIC — Plzen

University of West Bohemia

Centre of Computer Graphics & Data Visualization
University of West Bohemia
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Core Competence

Scientific Visualization, Computer Graphics in Parallel and Distributed Environment, Construction, Decimation and Reconstruction of Triangulated Geometric Models

Head of the Institute
Václav Skala

History

The first courses on Computer Graphics started as early as in 1976. In 1987, the first group of computer students oriented on computer graphics graduated. Since then nearly each year a group of computer graphics specialists finished their study in Pilsen and the original one course developed itself into six computer graphics courses taught in Pilsen now. Since 1992, the WSCG International Conferences in Central Europe (formerly the Winter School of Computer Graphics) are held. This conference is oriented mostly towards research in the field and related activities such as education and some special applications of computer graphics. See wscg.zcu.cz .

Staff

1 Professor: Václav Skala
1 Associate professor: Ivana Kolingerová
1 Assistant professor: Pavel Lederbuch

10 Research assistants and PhD students: Ing. Martin Franc, Ing. Pavel Maur, Ing. Jan Hrádek, Ing. Radek Sviták, Ing. Martin Èermák, Ing. Karel Uhlíø, Ing. Tomáš Hlavatý, Ing. Tomáš Jirka, Ing. Alexander Jemeljanov, Mgr.Jaroslav Semanèík

Rooms and Locations

The Centre is located on the 4-th floor of the main university building and includes two laboratories and several rooms.

Financing

As the Centre is a part of the University of West Bohemia, rooms and other infrastructure is covered by the university. Other expences, half is paid by the university and half is covered by external resources. Technical equipment was mostly bought from grants and projects.

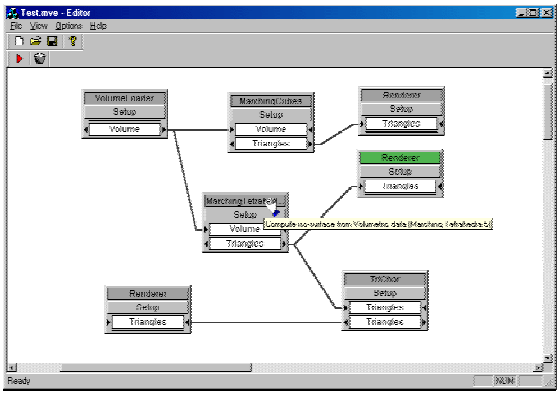
Current Structure and Important Partners

The Centre has rich contacts with many European universities as a part of Socrates/Erasmus project that enables students' long term and staff's short term exchanges. There are also bilateral scientific projects with universities and institutions abroad, namely University of Hosei (Japan), IHEP-Protivno (Russia), Pusan National University (Korea), King's Mongkut Institute of Technology Ladkrabang (Thailand), Hangzhou University (China), University of Maribor (Slovenia) etc. It necessary to point out that the Academy of sciences of the Czech Republic is also our very important partner. Our most important industrial partners are Microsoft and Hewlett Packard.

CENTRE OF COMPUTER GRAPHICS AND DATA VISUALISATION
UNIVERSITY OF WEST BOHEMIA

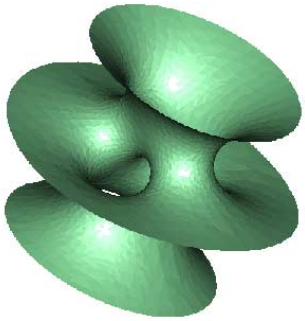
Current Research

Our research topics can be summarized as algorithms for computer graphics and scientific information visualization. We work on generation and optimization of triangulated and volume models including surface reconstruction and decimation. Part of our effort is also oriented to computer graphics in parallel and distributed environment on MS Windows platform. For details feel free to visit http://herakles.zcu.cz/research.php. One of our largest projects in the recent past was Modular Visulization Environment (MVE). It is a run-time editor containing modules for various kinds of data visualization and geometric modelling, developed at our Centre. The MVE package is already available to the computer graphics community on http://herakles.zcu.cz/research.php. The system is upgraded continuously by new modules. There are also several smaller sub-projects, namely: Mesh decimation: The aim of this subproject is to develop new efficient approaches for large triangular meshes, with controlled precision, considering also parallel processing. Triangulations: We made some improvements to Delaunay triangulation algorithms in 2D and 3D and also their parallelization on several-processor workstations. Surface reconstruction from scattered data: The research is concentrated on unambiguos identification of situations where reconstruction algorithms fail and on correction of such places. Surface reconstruction from slices: We tried to develop reconstruction techniques based on several sets of orthogonal slices. It seems that if such data are available, reconstruction process is more successful.



Important Recent Project Participations

- "ROTOR" - Computer Graphics and Visualization with C# Investor: Microsoft Research, U.K.
- "Scientific Collaboration with Greece and Slovenia Investors": Ministries of Education of participating countries
- "Parallelization of Computer Processing" Investor: The Czech Academy of Sciences, Czech Republic
- "Computer Graphics and Data Visualization in Distributed and Parallel Environment" Investor: Ministry of Education, Czech Republic
- "Computer Graphics and Data Visualization in Distributed and Parallel Environment" Investor: Hewlett Packard, Czech Republic



Important Recent Industrial Partners

Microsoft(CR), Microsoft Research (UK), Hewlett Packard(CR), SuperScape (U.K.)

Future of the Lab

The Centre funding in the future depends heavily on external resources and projects. It is expected that the Centre will carry out research and development in the field of algorithms for computer graphics, visualization and also applied research in the related fields.