

FROM THE EDITOR

This issue of „TASK Quarterly” is devoted to medical applications, one of the most interesting and important fields, where advanced computer technology is used in daily practice. The most evident is the use of computers in data acquisition and treatment systems, especially in medical visualisation, but also in many other fields as, e.g.: rapidly developing telemedicine or general management based on modern hospital information systems. Such terms as: CT — computed tomography, PET — positron-emission tomography, MRI — magnetic resonance imaging and many others, are synonyms of highly advanced techniques based on modern computers. On the other hand, modelling and simulation of biomedical processes and organs, study of static and fluid mechanics associated with physiological systems, design of bioimplantable or pharmaceutical materials and components, planning of therapy and many other subjects are developed only due to the extensive use of modern computer hardware and software. Also computer networks are widely introduced in health-care system institutions — therefore currently that tool is, and will be in the future, one of the most important components of the development of medical technologies.

The content of that issue is mixed, partly relating the advances of the use of computers in research concerning medical applications, partly devoted to non-professionals interested in new trends of computer technology in medicine. The papers are prepared by teams of researchers from the Technical University of Gdansk (TUG), mainly from the Department of Medical and Ecological Electronics, and from The Medical University of Gdansk (MUG). Both institutions are cooperating, being involved in several common Science Research Council (KBN) grants. Some projects are based on the use of the TASK infrastructure — both the network and the HPCC (High Performance Computer Centre). There are some attempts to organize a common interuniversity platform of cooperation — CEMET — Centre of Medical Technologies. This is based on EU TEMPUS funds — JEP 11550, coordinated and contracted by TUG, with other partners deeply involved in development or in practical use of modern medical technologies, especially informatics. From the Polish side the other partners of the JEP are: MUG; IMMT (Institute of Maritime and Tropical Medicine); Gdańsk St Adalbert (Municipal) Hospital and the Department of Health-Care of the Gdańsk County Council. The foreign partners are: Universities in Barcelona, Brussels, Glasgow, Ilmenau and industrial partners — Siemens AG and Oxford Medical. Several papers presented have already been discussed during the TEMPUS workshop, which took place in Ilmenau in September 1997.

More information concerning that Centre and its partners can be found under the address: <http://www-med.eti.pg.gda.pl>. Many interesting links to medical technology institutions can be found on the CEMET home page, which is also available under that address.

The situation of Polish health-care system, in terms of technologies available, does not differ much from the general situation in Western Europe. Still, there are some delays, e.g. in terms of introduction of hospital information systems, but in medical visualisation, in availability of computer technology in medical research and in many other fields important for the future development, the advances of Polish groups are highly appreciated and recognized. In this issue some recent research projects based on computer technology are presented. Those are papers concerning: 3-D reconstruction for EIT (Electro-Impedance Tomography), integration of EEG and MRI signals, optimal multicompartmental experiment design, nonlinear methods in heart variability, and that one concerning populational genetics. The paper devoted to an editor for 3D medical images is relating results of ETRO Group in Brussels, one of our partners — the project was partly financed by EU Telematics Applications Programme (Telemedicine). The papers concerning the advances of medical visualisation and the guide to Internet are regarded as short introduction, mainly of educational character, addressed especially to those who are non-specialists in computer technology. Finally, as it starts to be a tradition, a short historic note is presented.

It should be stressed, that in Poland there are much more activities devoted to medical problems than mentioned in that issue. A lot of important information is already available on home pages of all medical educational and research institutions. For those who would like to know more, the addresses of 5 HPC centres are especially important: in Gdansk, TASK — <http://www.task.gda.pl> and the page devoted to the scientific databases in Poland — <http://infobaza.task.gda.pl>; in Cracow, CYFRONET — <http://www.cyf-kr.edu.pl>; in Poznan, PCSS — <http://www.man.poznan.pl>; in Warsaw, ICM — <http://www.icm.edu.pl>; in Wroclaw, WCSS — <http://www.wcss.wroc.pl>. You can find there that, for example the anatomy atlas based on the Visual Human Project, is already available in ICM, where many databases such as MEDLINE or Beilstein and a lot of medical research projects may be accessed as well.

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