

Department of Computer Science

AGH University of Science and Technology

Tradition and modernity



The Department of Computer Science is one of the six units that make up the largest of 15 faculties of the AGH University of Science and Technology (AGH-UST) in Cracow: the Faculty of Electrical Engineering, Automatics, Computer Science and Electronics.

Established 24 years ago, it is one of Poland's oldest research and teaching units in a field which is today essential for every modern economy. Nowadays, the Department of Computer Science is the main unit responsible for the training of specialists and the development of modern information technologies in Poland. It operates at a university celebrated for its contribution to the development of industry in Poland - the AGH-UST. For two years, the Department has been chaired by Professor Krzysztof Zieliński.

Research

The main areas of studies pursued at the Department of Computer Science include:

- distributed systems: network integrating systems, network multimedia service, mobile telephony, and wireless and mobile environments;
- methodologies and tools in distributed computing, GRID and large-scale computing systems, computer graphics, animation, and pattern recognition;
- intelligent computer systems: artificial intelligence, decision support systems, databases and expert systems, and computer linguistics.

The research is carried out in broad collaboration with foreign partners and makes use of extensive infrastructure of the Department's close partner, the CYFRONET Academic Computer Centre, AGH-UST.

The Department's research teams are currently in charge of four European projects (CROSSGRID, PELLUCID, 6WINIT, PROACCESS) and several major nation-wide undertakings, such as CLUSTERIX, PROGRESS, or SGI Grid, connected with the development of a GRID infrastructure to provide tools for implementation of global metacomputer idea. These projects translate directly into academic achievements and unique technological solutions, developed by the staff of the Department as well as its graduates. The latter occupy a prominent position in the executive bodies for the largest IT companies in the Malopolska region, such as COMARCH (out of its five Executive Board members, four hold AGH-UST diplomas in Computer Science) or SOLIDEX. They are also much praised, among others, by the management of Motorola Software Center, ABB Research Laboratory in Cracow, or IBM Polska.

Teaching - the top priority

The most important task by far of the AGH-UST Department of Computer Science is to train specialists capable of meeting the increasing demands of employers. This requires the curricula to be flexibly adjusted to the rapidly changing situation on the modern technology market. Maintaining high teaching standards also calls for large investments in constantly evolving computer hardware and software. In order to succeed on the job market, a graduate needs to gain experience already in the course of studies, in the computer labs, through the use of state-of-the-art equipment (wherever possible), modern applications and tools. Thanks to their sound theoretical knowledge combined with practical skills in the use of IT solutions, our graduates are in great demand on the job market.

The field of studies attracts many graduates of the best secondary schools in the region. As the number of candidates per place has been in double digits for the past few years, studying at the AGH-UST Department of Computer Science has come to be seen as a prestigious choice. The Department of Computer Science offers two programmes of studies:

Distributed systems and computer networks,

- comprising: computing methods and services in parallel and distributed computer systems;
- development of modern network software for the storage, transmission and presentation of data in distributed systems.

As regards the first group of issues mentioned above, particular emphasis is placed on the use of multiprocessor computer systems, computer clusters and GRID-type metacomputer architectures. In the context of network systems, the focus is on the organisation of access to multimedia content, its transmission and presentation on mobile devices using wireless network access.

Software and database systems engineering

The curriculum provides an extensive coverage of the problems of data acquisition, storage and management, the use of information management systems (databases, data warehouses) and knowledge management (diagnostic, expert and decision-support systems). The key issues have to do with the design, specification and implementation of heterogeneous decentralised systems for the global network environment. Included in the program are modern Internet technologies and agent systems, evolutionary computing, decision-support systems, artificial intelligence algorithms and methods. Attention is also given to project management, with special emphasis on database systems.

Plans for the future

In 2004 and the years to come, the AGH-UST Department of Computer Science intends to expand its specialised computer laboratory infrastructure in connection with the plans to organise a unit for scientific imaging, graphics and pattern recognition, and a data management centre. Enhancement are also envisaged in the areas of computer system security and autonomous mobile agent systems. These developments are closely linked with the progress of research in these fields and further modernisation of teaching process.

The Department takes active part in projects carried out within the Centre for Advantage Technologies (CZT) programme, launched by the Ministry of Scientific Research and Information Technology. Some projects are also in preparation for the EU Sixth Framework Programme. A strategic goal of the Department of Computer Science is to strengthen its research and teaching collaboration with leading IT companies, through active participation in their partnership programmes for universities. These endeavours have already resulted in the establishment of a highly successful Cisco CCNP Academy. This year, a Java Training Centre, certified by Sun Microsystems, is to be opened within the Department. Plans are also afoot to start a Microsoft Training Centre. Students are highly interested in certification by IT companies, and this procedure makes an excellent complement to the curriculum. In addition, collaboration with the IT industry provides an opportunity to obtain equipment for the teaching labs and the most recent software versions.

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