Introduction

The Department of Computer Science engages in software research and education. Its researchers study methods and develop tools to master the ever-increasing complexity of designing, implementing and maintaining reliable software systems, including numerical computations. The Department organizes the curricula in Informatics, Computer Science, Artificial Intelligence, Mathematical Engineering and Digital Humanities in the Faculty of Engineering Science and in the Faculty of Science.

The Department consists of four units: the Informatics Section and the Numerical Analysis and Applied Mathematics Section at Campus Leuven, a unit at Campus Kortrijk, and a Technology Cluster which groups our researchers at other campuses in Flanders.

Teaching Responsibilities

Members of the Department of Computer Science propose the curricula and teach courses in the Faculty of Engineering Science and in the Faculty of Science. Their main responsibilities include:

- Bachelor and Master in Applied Informatics (Faculty of Science); this MSc offers three fields of specialisation (software development and distributed systems, multimedia, artificial intelligence);
- Bachelor and Master of science in Engineering: Computer Science (Faculty of Engineering Science); this MSc offers six areas of specialisation: software engineering, distributed systems, artificial intelligence, human-computer interaction, secure software, computational informatics);
- Master of science in Mathematical Engineering;
- Master of science in Artificial Intelligence;
- Master of science in Digital Humanities;
- PhD programme in Computer Science (Faculty of Engineering Science);
- PhD programme in Informatics (Faculty of Science).

Research Profile

Research in the Department of Computer Science focuses on:
- methods, languages and tools to model, design, implement and maintain very complex (distributed) software systems which are agile, mobile, reliable and secure;
- declarative methods in programming and knowledge representation, machine learning and data mining;
- multimedia databases and human-computer interaction;
- realistic scene visualisation;
- the development of reliable and efficient numerical methods and mathematical software.

Research Units

Research in Leuven and Kortrijk is organized in the following research units:

- **Distributed and Secure Software** (DistriNet): web applications and service oriented systems, embedded and ubiquitous systems, mobile systems and cloud computing platforms, security in software engineering, software architecture and systems implementation, high assurance through software verification, multi-agent systems and autonomic computing, sensor networks and Internet of Things and middleware and software development environments
- **Declarative Languages and Artificial Intelligence** (DTAI): machine learning, data mining, uncertainty in AI, knowledge representation, declarative programming, constraint programming, program optimisation and predictive medicine
- **Combinatorial Optimisation and Decision Support** (CODeS): (decentralized) decision making, metaheuristics, combinatorial optimization, scheduling, vehicle routing, cutting & packing in industry, bioinformatics, e-learning and geo-information systems
- **Human-Computer Interaction** (HCI): information visualisation, learning analytics awareness & sense-making, (social) information retrieval, natural language and multimedia processing, text mining, computer graphics, photorealistic rendering and procedural texturing & modeling
- **Numerical Analysis and Applied Mathematics** (NUMA): numerical simulation, scientific computing, large-scale and structured matrix computations, quasi-Monte Carlo methods, uncertainty quantification, approximation theory, optimization and control, tensor computations, multiscale simulation, high-performance computing.

Figures

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>Professors</td>
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<tr>
<td>Postdoctoral researchers</td>
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<tr>
<td>PhD researchers</td>
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(figures October 2017)