Ongoing Researches at the Institute of Informatics

There are several different researches going on at the units of the Institute. These researches are into various scientific fields, for example the ones listed below.

**Department of Computational Optimization**

- Reliable computing,
- interval optimization,
- discrete optimization,
- PNS problems,
- extremal graph theory,
- combinatorial games,
- history of mathematics.

**Department of Computer Algorithms and Artificial Intelligence**

- Automata theory,
- Fuzzy theory,
- Bin packing,
- Meta heuristics,
- String matching,
- On-line algorithms,
- Machine Learning and Computational Learning Theory,
- Multi-Criteria Decision Making,
- Scheduling,
- Robotics,
- Mechatronics.

### Department of Foundations of Computer Science

- Algebra and logics in computer science, Automata and formal languages,
- Tree-automata and tree-transducers.
- Term rewriting systems, and fixed points in computer science.
- Process algebras, Temporal logics.
- Structures in computer science: semirings and semi-modules, and categorical algebras.

### Department of Image Processing and Computer Graphics

- Image processing,
- Geoinformatics,
- Industrial Applications,
- Markov Models,
- Medical Applications,
- Registration,
- Remote Sensing,
- Segmentation,
- Skeletonization,
- Surgical Planning,
- Tomography, Discrete Tomography,
- Variational Methods

### Department of Software Engineering

- Static and dynamic analysis of software systems.
- Slicing for imperative languages and logical programming.
- Reverse engineering.
- Open source software development.
- Linux file system and GCC compiler optimization.
- Embedded systems.
- Process synthesis.
- Optimization problems arising in chemistry, biology and industry.

### Department of Technical Informatics

- Noise and fluctuations,
- Scientific instrumentation,
- Robotics,
- Wireless sensors,
- Sensor signal conditioning and processing,
- Medical instrumentation and signal processing,
- Remote controlled laboratory,
- Computer-controlled real-time experimentation.