

# Research Institute e-Austria Timisoara



**Advancing Information  
Technology through  
Research and  
Applications**

Office: B-dul Vasile Parvan nr. 4, RO-300223 Timisoara  
Tel/fax: +40-256-244834, [Http://www.ieat.ro](http://www.ieat.ro)

Contact: Director Prof. Dr. Dana Petcu  
E-mail: [dana@ieat.ro](mailto:dana@ieat.ro)

## Goals

- The Institute e-Austria is dedicated to the promotion of excellence in scientific research and technological transfer in the field of information technologies.
- One of the main goals is to promote cooperation between Austria and Romania, both scientifically and economically.

## Aims

- Encourage and support research carriers of young graduates
- Form research groups around international researchers
- Stimulate international cooperation through partnership in collaborative projects
- Attract national and international funds in the region for research and development
- Reinforce the bridge between research, academia and software industry
- Support regional activities for clustering

## History



- The institute was created in 2002 by
    - RISC (Research Institute for Symbolic Computation of Johannes Kepler University of Linz, Austria)
    - UVT (Universitatea de Vest din Timisoara, Romania)
    - UPT (Universitatea Politehnica din Timisoara, Romania)
- using public funding from
- BMWF (Austrian Ministry of Education, Science, and Culture),
  - BMWA (Austrian Ministry of Economy)
  - MEC (Romanian Ministry of Education and Research).

## Evolution

- Increase of personnel:
  - 5 in October 2002 (start-up)
  - 12 in October 2003
  - 25 in October 2007
  - 35 in October 2012
  - 40 in October 2017
- Recognized R&D unit
  - At regional, national and international level
- Funding scheme through
  - R&D projects obtained by competition
  - Knowledge transfer projects with industry

## Individuality

- One of the few private research institutions in Romania
- Helping early career researchers
- Incomes mainly from international R&D projects
  - participations in European Commission projects
  - involved in Romanian and bilateral projects

## Initiators



## Resources

- Human resources
  - Own research and administrative personnel
  - Teachers & students from associated universities
- Infrastructure
  - Two research labs, at UVT and UPT
  - Secretariat at UVT
  - Hardware: own HP/IBM cluster,
  - Access to an IBM Blue Gene and a GPU cluster

## Dissemination



- Technical reports available on-line: [www.ieat.ro/researchreports](http://www.ieat.ro/researchreports)
- Symposium co-organizer:
  - SYNASC series of yearly conferences, 2003-2017: International Symposium on Symbolic and Numeric Algorithms for Scientific Computing

## Scientific expertise

- Distributed computing: Cloud & Grid
- Parallel computing: HPC & Cluster
- Formal verification of information systems
- Computational logic
- Software quality measurement
- Soft computing and natural computing
- Numerical methods & mathematical software
- Computer security
- Expert systems and multi-agent systems

## Knowledge transfer projects

- RISC GmbH, AT: telecommunications, logistics
- Alcatel-Lucent, RO: software verification and quality measurement, training on OOP
- Continental Automotive, RO: Cloud computing
- Lucas Varsity, DE: soft development & testing
- VCODYNE SAS, FR: Cluster as a service
- Fujitsu, AT: software development
- Quatermill, RO: doc management
- SocioNext, AT: software development

## Current R&D projects

- H2020
  - DICE: Developing Data-Intensive Cloud Applications with Iterative Quality Enhancements
  - CloudLightning: Self-Organising, Self-Managing Heterogeneous Cloud
- PNIII:
  - MANeUverR: Management Agency for Cloud Resources
  - ATCO: Advanced techniques in combinatorial optimization and computational complexity
  - FraDys: Theoretical and Numerical Analysis of Fractional-Order Dynamical Systems & Applications

## Former R&D projects

### European Commission funds

- FP7/CIP
  - SPECS: Secure provisioning of Cloud Services on SLA Management
  - MODAClouds: Model-Driven Approach for Design and Execution of Applications on Multiple Clouds
  - mOSAIC: Open Source API and Platform for Multiple Clouds
  - SPaCloS: Secure Provision and Consumption in the Internet of Services
  - AVANTSSAR: Automated Validation of Trust and Security of Service Oriented Architectures
  - DEHEMS: Digital Environmental Home Energy Management System
  - SEED: Speeding Every European Digital
- FP6/INTAS
  - SCIENCE: Symbolic Computing Infrastructure in Europe
  - SystemaThEx: Systematic Mathematical Theory Exploration with Theorema System:
  - PhaseTrans: Phase Transitions in Computational Complexity & Formal Verification
  - PracticalVer: Practical formal verification using automated reasoning & model checking

### Funds from European Research Agencies

- Swiss NSF-NOREX: Network of re-engineering expertise
- French EcoNet: Executable and verifiable models for security of communicating systems
- AT AEMTIA: Automated Exploration of Mathematical Theories for Industrial Applications

### Romanian funds

- PNII
  - STRUCTCOMB: Structure and computational difficulty in combinatorial optimization: an interdisciplinary approach
  - NatComp: new models for natural computing for the study of complexity
- CEEX-I:
  - Promotion of the research activity in computer science in West Romania
  - NanoSim: Transport phenomena and structure formation at the micro/nanometer scale in biomedicine & materials sciences
  - ForMol: Computational formalism inspired by molecular biology
  - SIAPOM: Integrated system for Analysis & Multidisciplinary Design Optimisation
- CNCSIS SEPROI: Studies and systematic exploration of parallel iterative processes
- RO-Academy PSysGar: Models and implementations for P systems