

# University of Szeged TANGO collaboration



TANGO meeting

19-20 May, 2014, ESRF, France

# University of Szeged

- ▶ January 2000: unification of the former universities and colleges
- ▶ Ranked 2nd in Hungary, in the top 400 worldwide
- ▶ About 30 000 students, 8 000 employees, 12 faculties



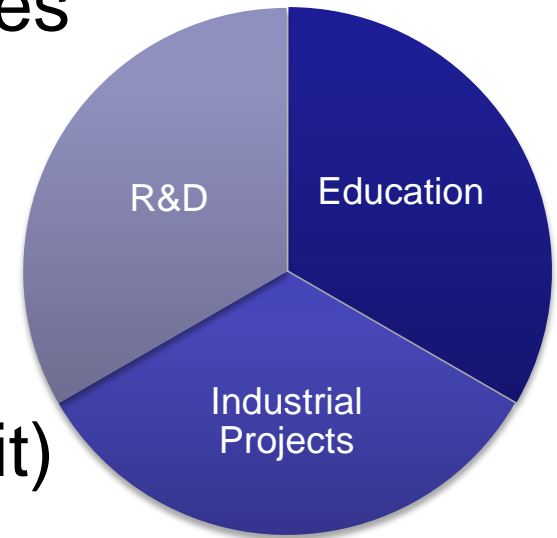
# Institute of Informatics

- ▶ About 2 000 students
- ▶ Six departments and a research group:
  - Department of Computational Optimization
  - Department of Computer Algorithms and Artificial Intelligence
  - Department of Foundations of Computer Science
  - Department of Image Processing and Computer Graphics
  - Department of Software Engineering
  - Department of Technical Informatics
  - Research Group on Artificial Intelligence of the Hungarian Academy of Science



# SZTE – SED

- ▶ One of the top 10 software quality R&D teams of the world
- ▶ More than 150 employees
  - University & spin off companies
- ▶ R&D areas:
  - Source code quality
  - M2M systems
  - Open-source systems (Webkit)
  - Embedded systems



# Cooperation with Industry

## ▶ Multinational Companies

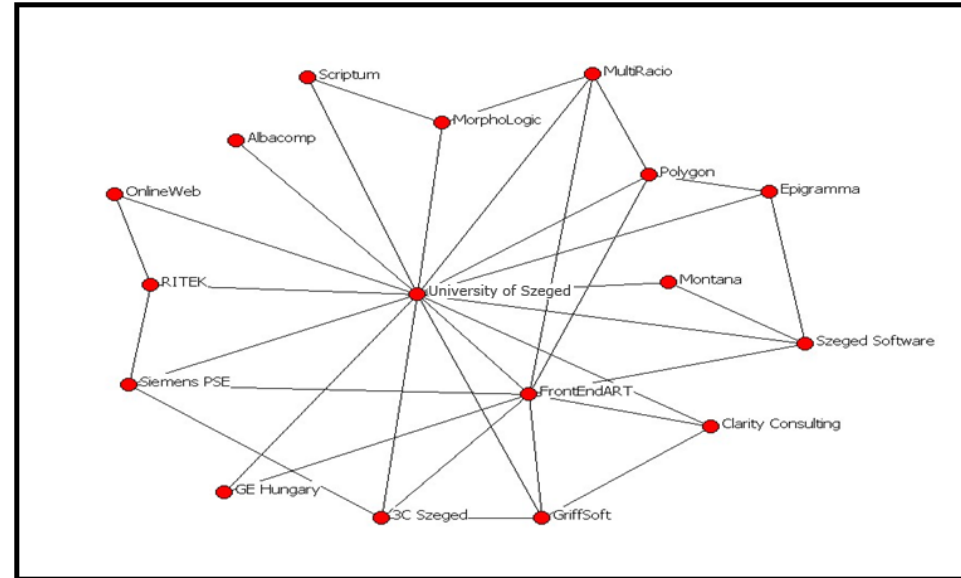
- Nokia
- ARM
- Morgan Stanley
- etc.

## ▶ IT Cluster

- cca. 50 local or national companies

## ▶ Spin-off Companies

- FrontEndART
- AENSys
- HighTec Hungary





# Webkit – outsourced R&D with Nokia, ARM and Digia

- ▶ Open-source browser engine used by
  - Apple, Google, Nokia, Samsung, ...
- ▶ Desktop browsers
  - Safari, formerly: Chrome
- ▶ Mobile browsers
  - Android, iOS



Many years of ongoing tailoring, QA and enhancement (20+ people) of the browser engine for Nokia, ARM and Digia (QT)



# Columbus team

- ▶ 65 people
- ▶ Software Engineering Department
  - Research & Development of the Columbus technology
  - Teaching
- ▶ FrontEndART Software Ltd.
  - Founded in 2001 by academic researchers and professors
    - Commercialization of the Columbus technology
  - Product development
  - Testing services
  - Consultancy
- ▶ More than 400 person-years R&D investment in software quality assurance methods and tools



# The research group

- ▶ Over 100 publications related to software quality
  - Over 2 000 independent citations
- ▶ Conference organization
  - IEEE ICSM 2005
    - the largest software maintenance conference in the world
  - IEEE CSMR 2002 & CSMR 2012
    - the largest software maintenance conference in Europe
  - ACM ESEC/FSE 2011
    - one of the largest software engineering conferences in the world





# Our mission

- ▶ Technologies for Improving Software Quality
  - Improve maintainability
    - Reducing costs of development and testing
  - Static code analysis
    - Find and reduce the number of bugs
  - Continuous quality monitoring and assessment
    - Following the ISO/IEC 9126 & ISO/IEC 25010 standards
  - Testing
    - Real-time coverage measurement (Java EE, Android, C/C++)
    - Test-suite optimization/selection



# TANGO at USZ



## ▶ TANGO contributions at USZ

- Tight collaboration with ELI-ALPS
- A TANGO university course for MSc students
  - 22 participants in the first semester
  - Successful projects, e.g. TANGO Octave wrapper, Logging service extensions, CCD simulators.
  - To be continued in the next semester with master thesis topics
- Participation in the TANGO code-camp at ESRF
  - Presenting the static code analysis based quality results of TANGO components
- Participating in a H2020 proposal for TANGO industrialization (to be presented by Lajos later on)
  - With ESRF, SOLEIL, ELETTRA, ELI-ALPS, Nexeya, iMatix and CODRA



# TANGO perspectives at USZ

- ▶ To build strong TANGO competence
  - A team within SED with contributor status, actively developing TANGO
    - 3 experts and 2 MSc students and growing
    - Attract talented students from the TANGO course
  - To train students with appropriate TANGO skills
    - To join our TANGO team
    - To provide good candidates for ELI
- ▶ To join TANGO Controls Consortium



# TANGO perspectives at USZ

- ▶ Potential collaboration with National Instruments
  - TANGO LabVIEW integration
    - A prototype TANGO wrapper device made by MSc students for demonstration
    - Further research on the possible implementation
- ▶ Help to keep the level of quality of new TANGO developments with continuous monitoring
  - Also part of the H2020 proposal

