VIENNA UNIVERSITY OF TECHNOLOGY

Karlsplatz 13
1040 Vienna

Favoritenstrasse 9-11
1040 Vienna
Karlsplatz 13

PRECHTL-HALL
Ground floor
(PLENARY SESSION)
Favoritenstrasse 9-11
Conference halls

HALL 2
(SECTION 3-A)

HALL 3
(SECTION 1)

HALL 4
(SECTION 2)

HALL 5
(SECTION 3-B)

HALL 6
(SECTION 4)
Dear Participants,

You can use **WIRELESS INTERNET** of the Vienna University of Technology – free of charge :-(}
CONFERENCE OBJECTIVE

The CompSysTech’11 International Conference is organized by THE BULGARIAN ACADEMIC SOCIETY OF COMPUTER SYSTEMS AND INFORMATION TECHNOLOGIES and by THE ASSOCIATION FOR COMPUTING MACHINERY and its OBJECTIVE is to intensify the information exchange of results in theoretical research and practical developments in this field.

CompSysTech’11 is organized under the patronage of:

- EUROPEAN COMMISSION - Directorate-General for Education and Culture
- Bulgarian Ministry of Education, Youth and Science
- Bulgarian Academy of Sciences
- John Atanasoff Society of Automatics and Informatics
- Bulgarian Chapter of IEEE Computer Society
- Bulgarian Chapter of IEEE Communications Society

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Vassil Sgurev, Acad., BAS

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Scientific Secretary:
Dimo Dimov

Secretary
Yordan Kalmukov

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Boris Novikov (Russia) Ioannis Stamelos (Greece)
Bozhaz Zhechev (Bulgaria) Ivan Jelinek (Czech Republic)
Candelaria Hernández-Goya (Spain) Janis Grundspenks (Latvia)
Chakib Tadj (Canada) Janusz Jablonowski (Poland)
Constantinos Pattichis (Cyprus) Jiri Srba (Denmark)
Dana Petcu (Romania) Johann Eder (Austria)
Danail Dochev (Bulgaria) Jordan Kolev (Bulgaria)
Diana Kalibatene (Lithuania) Jorge Ramio (Spain)
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Erika Asnina (Latvia) Jukka Teuhola (Finland)
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George Totkov (Bulgaria) Krassen Stefanov (Bulgaria)
Ladislav HUDEC (Slovakia) Novruz Allahverdi (Turkey)
INTERNATIONAL ORGANIZING COMMITTEE

Co-Chairs:
Hilda Tellioglu (Austria)  Angel Smrikarov (Bulgaria)

Secretary:
Wolfgang Spreicer (Austria)  Margarita Grigorova (Bulgaria)

Members:
Paulina Linseder (Austria)  Stoyanka Smrikarova (Bulgaria)
Simone Rissleger (Austria)  Plamenka Borovska (Bulgaria)
Patrick Wolowicz (Austria)  Grisha Spasov (Bulgaria)
Verena Himmelbauer (Austria)  Nadezhda Ruskova (Bulgaria)
Anja Fiby (Austria)  Margarita Todorova (Bulgaria)
Raicho Ilarionov (Bulgaria)  Yordan Kalmukov (Bulgaria)

TOPICS

1. COMPUTER SYSTEMS (HARDWARE)
2. COMPUTER SYSTEMS (SOFTWARE)
3. APPLICATION ASPECTS OF COMPUTER SYSTEMS AND TECHNOLOGIES
4. EDUCATIONAL ASPECTS OF COMPUTER SYSTEMS AND TECHNOLOGIES

CO-LOCATED EVENTS

1. MINI SYMPOSIUM "ASTROINFORMATICS"
2. WORKSHOP "SERVICE-ORIENTED AND CLOUD COMPUTING"
Thursday 16th June 2011

09:00 – 14:30
PRECHTL-HALL
(Foyer)
REGISTRATION

15:00
PRECHTL-HALL
OPENING
Young Talents from Vienna
WELCOME
from the Vienna university of technology

PLENARY SESSION

CHAIR
HILDA TELLI OGLU

KEYNOTE SPEAKERS

JOHANN EDER
Alpen Adria Universiat Klagenfurt
Lecture on: View-based Interorganizational Workflows

SCHAHRAM DUSTDAR
Vienna University of Technology
Lecture on: Socially enhanced Services Computing
MEHDI JAZAYERI
University of Lugano

Lecture on: **End-User Programming of Web-Native Interactive Application**

MILAN DIMITRJEVIC
Astronomical Observatory, Belgrade

Lecture on: **New Challenges of Astroinformatics - STARK-B Database and Serbian Virtual Observatory - SerVO and Relations to European Virtual Atomic Data Centre - VAMDC**

**DISCUSSIONS**

19:30
Social Evening
**SUMMERSTAGE VIENNA**
Donaukanal / U4-Station Rossauer Lände, 1090 Vienna

:-)
SECTION 1

Computer Systems (Hardware)

Chair: Alexander Sudnitson
Co-Chair: Ville Leppänen
Scientific Secretary: Radoslav Mladenov

Friday 17th June 2011
09:00 – 10:15
Hall 3

1.1. A Layout for Sparse Cube-Connected-Cycles Network
Ville Leppänen, Martti Penttonen, Martti Forsell

1.2. Non-Linear Asynchronous Micro-pipelines
Dimitar Tyanev, Dragomir Yanev, Stefka Popova

1.3. Recursion and Hierarchy in Digital Design and Prototyping: A Case Study
Dmitri Mihhailov, Margus Kruus, Valery Sklyarov, Iouliia Skliarova, Alexander Sudnitson

1.4. RISC-based moving threads multicore architecture
Jari-Matti Mäkelä, Ville Leppänen, Martti Forsell

1.5. A Self-tuning Hybrid Flash Translation Layer For Embedded Systems
Radoslav Mladenov, Sava Ivanov

DISCUSSIONS

11:00 – 11:30
Coffee Break – Ground Floor
SECTION 2

Computer Systems (Software)

Chair: Stavros D. Nikolopoulos
Co-Chair: Amar Ramdane-Cherif
Scientific Secretary: Ilka Serafimova

SECTION 2 - SESSION 1

Friday 17th June 2011
09:00 – 11:00
Hall 4

2.1. An Integrated Approach for RUP, EA, SOA and BPM Implementation
Juan Pablo Napoli, Kalinka Kaloyanova

2.2. A Distributed Service Oriented System for GUI Map Generation
Paweł Brach, Jacek Chrząszcz, Janusz Jabłonowski, Jakub Światły

2.3. Abstract model of an Object-Oriented Layer for distributed systems based on the DDS standard
Georgi Kirov, Valentin Stoyanov, Boyan Lazarov

2.4. An Interactive Evolutionary Algorithm for Multiple Objective Convex Integer Problems
Vassil Guliashki, Leoneed Kirilov

2.5. Exploring the Efficiency of Parallel Bacteria Foraging Metaheuristics for Job Shop Scheduling Problem Optimization
Plamenka Borovska, Emilyan Asenov, Veska Gancheva

2.6. Deriving Business Rules From The Models Of Existing Information Systems
Olegas Vasilecas, Kestutis Normantas

2.7. Rule Based Framework for Intelligent GUI Adaptation
Plamen Paskalev, Ilka Serafimova

2.8. Algorithm of Concept Map Transformation to Ontology for Usage in Intelligent Knowledge Assessment System
Vita Graudina, Janis Grundspenkis

DISCUSSIONS

11:00 – 11:30
Coffee Break – Ground Floor
SECTION 2 - SESSION 2

Friday 17th June 2011
11:30 – 13:30
Hall 4

2.9. Designing patterns for multimodal fusion
Ahmad Wehbi, Amar Ramdane-Cherif, Chakib Tadj

2.10. Emotion recognition using bimodal data fusion
Dragos Datcu, Leon J.M. Rothkrantz

2.11. Investigation of the Emotional Characteristics of the Words from an Electronic School-Aid Dictionary
Dilyana Budakova, Stoil Penev

2.12. Towards Semi-Automatic Usability Analysis through Eye Tracking
Maria Grazia Albanesi, Riccardo Gatti, Marco Porta, Alice Ravarelli

2.13. Encoding Watermark Numbers as Cographs using Self-inverting Permutations
Maria Chroni, Stavros D. Nikolopoulos

2.14. A Classification Method Based on Two Separating Hyper Surfaces
Valeri Ilchev, Svetozar Ilchev

2.15. Local Weighted Approach to Time Series Forecasting
Ventsislav Nikolov

2.16. Reducing the Number of Unit Tests with Design by Contract
Harri Hakonen, Sami Hyrynsalmi, Antero Järvi

DISCUSSIONS

13:30 – 14:30
Lunch – Mensa
SECTION 2 - SESSION 3

Friday 17th June 2011
14:30 – 15:45
Hall 4

Krasimira Genova, Leoneed Kirilov, Vassil Guliashki, Boris Staykov, Daniel Vatov

2.18. Enhancing Automatic Term Recognition Algorithms with HTML Tags Processing
Milan Lučanský, Marián Šimko, Mária Bieliková

2.19. Lifting and Lowering the Data from Digital Library “Virtual Encyclopedia of Bulgarian Iconography”
Ivo Marinchev

2.20. Developing Service Oriented Architectures for Increasing Software Application’s Reliability
Anca Ioana Andreescu, Marinela Mircea

2.21. Comparison Of Firefly Algorithm Optimisation, Particle Swarm Optimisation And Differential Evolution
Karl O. Jones, Grégoire Boizanté

DISCUSSIONS
SECTION 3-A

Application Aspects of Computer Systems and Technologies

Chairs: Plamenka Borovska
Co-Chairs: Markus Helfert
Scientific Secretaries: Adelina Aleksieva-Petrova

SECTION 3A - SESSION 1

Friday 17th June 2011
09:00 – 11:00
Hall 2

3A.1. A parallel GPU implementation of an algorithm for determining directional distances
Mika Murtojärvi, Ville Leppänen, Olli S. Nevalainen

3A.2. Comparison of Parallel Algorithms for Modelling Mass-springs Systems with Several APIs on Modern GPUs
Tzvetomir Vassilev

3A.3. Parallel Models for Sequence Alignment on CPU and GPU
Plamenka Borovska, Milena Lazarova

3A.4. Acoustic Mapping on three-dimensional models
Andy Meyer, Dirk Döbler, Jan Hambrecht, Manuel Matern

3A.5. Accurate 3D Object Measurement and Inspection using Structured Light Systems
Kesheng Wang, Quan Yu

3A.6. An Algorithm for Fast Image Registration and Feature Matching for the Purposes of Image Stitching
Yulka Petkova, Nuri Nuri

3A.7. Depth Estimation using Shifted Digital Still Camera
Iva Nikolova, Atanas Nikolov, Georgi Zapryanov

3A.8. Simulated Images of Faces with Eyeglasses
Ivan Buliev, Peycho Popov, Blagovesta Hristova

DISCUSSIONS

11:00 – 11:30
Coffee Break – Ground Floor
SECTION 3A - SESSION 2

Friday 17th June 2011
11:30 – 13:30
Hall 2

3A.9. Parallel Performance Evaluation of Multithreaded Local Sequence Alignment
Plamenka Borovska, Veska Gancheva, Galin Dimitrov, Krasimir Chintov

Plamenka Borovska, Adelina Aleksieva-Petrova, Veska Gancheva, Stefan Beshkov

Thanh Thoa Pham Thi, Markus Helfert, Fakir Hossain, Thang Le Dinh

3A.12. Visualization of Complex Data Relationships and Maps: Using the BLOOM Platform to Provide Business Insights
Frank Horsfall, Stoyan Tanev, Boyan Bontchev, Todor Gigilev and Angel Gruev

3A.13. Information management of mechatronic systems materials
Rima Ben Mosbah, Sébastien Dourlens, Amar Ramdane-Cherif, Nicole Levy, Francisca Losavio

Rima Ben Mosbah, Sébastien Dourlens, Amar Ramdane-Cherif, Nicole Levy, Francisca Losavio

3A.15. System Implementation and Adaptation Evaluation in Adaptive Web-Based Systems
Bujar Raufi

3A.16. A Construction Plan Image Service for Smart Phones
Risto Laine, Jouni Ikonen

DISCUSSIONS

13:30 – 14:30
Lunch – Mensa
SECTION 3A - SESSION 3

Friday 17th June 2011
14:30 – 16:00
Hall 2

3A.17. CAD Module for Knitting Patterns Design
Elena Zaharieva-Stoyanova, Stefan Bozov

3A.18. Problems and solutions for creating and using virtual models of forest ecosystems
Boyanka Zhelyazova, Radoslav Miltchev

3A.19. Tangible interfaces as a chance for higher technology acceptance by the elderly
Wolfgang Spreicer

3A.20. Static memory optimization by clustering and neural networks in embedded devices
Vladimir Yanakiev, Elena Paunova

Omar Ragb, Karl Jones, Dingli Yu, J Barry Gomm

3A.22. Residual generation for fault detection of internal combustion engine
Adnan Hamad, Karl Jones, Dingli Yu, J B Gomm, Mahavir S Sangha

DISCUSSIONS
SECTION 3-B

Application Aspects of Computer Systems and Technologies

Chairs: Novruz Allahverdi
Co-Chairs: Daniela Chudá
Scientific Secretaries: Diana Grigorova

SECTION 3B - SESSION 1

Friday 17th June 2011
09:00 – 11:00
Hall 5

3B.1. A Fuzzy Expert System Design to Monitor Patient’s Condition During Heart Surgery
Novruz Allahverdi, Gokhan Altan

3B.2. A Post Cardiac Surgery Home-Monitoring System
George Matheou, Efthvoulos Kyriacou, Panayiota Chimonidou, Constantinos Pattichis, Ekaterini Lambrinou, Vassilis I. Barberis, George P. Georgiou

3B.3. A Simplified 2D Real Time Navigation System For Hysteroscopy Imaging
Ioanna Herakleous, Ioannis P. Constantinou, Elena Michael, Marios S. Neofytou, Constantinos S. Pattichis, Vasillis Tanos

Maja Bračič Lotrič, Bojan Cestnik

3B.5. Protein Structure Comparison Based on Distances between Secondary Structure Elements and Backbone Dihedral Angles
Dobrinka Petrova

3B.6. VI-Navi: A Novel Indoor Navigation System for Visually Impaired People
Parth Mehta, Pavan Kant, Poojan Shah, Anil K. Roy

3B.7. Algorithm for blind navigation along a GPS track
Rosen Ivanov

3B.8. Surveillance System Using Abandoned Object Detection
Zhenke Yang, Leon J. M. Rothkrantz

DISCUSSIONS

11:00 – 11:30
Coffee Break – Ground Floor
SECTION 3B - SESSION 2

Friday 17th June 2011
11:30 – 13:30
Hall 5

3B.9. Risk Analysis of a Video-Surveillance System
Leon J. M. Rothkrantz, Iulia Lefter

3B.10. Risk Analysis supported by Information Security Metrics
Jakub Breier, Peter Hofbauer, Ladislav Hudec

3B.11. Zero pronoun resolution in Bulgarian
Diana Grigorova

3B.12. An Adaptive Circular (Text) Input for Handheld Devices
Siska Fitrianie, Leon J. M. Rothkrantz

3B.13. Dynamic Bayesian Networks for Situational Awareness in the Presence of Noisy Data
Pascal Wiggers, Bionda Mertens, Leon J. M. Rothkrantz

3B.14. The impact of text pre-processing to determine the similarity in students assignments
Daniela Chudá, Ján Chlpek, Andrej Kumor

3B.15. Obfuscating Plagiarism Detection - Vulnerabilities and Solutions
Tomáš Kučečka

3B.16. The Plagiarism Detection by Compression Method
Daniela Chudá, Martin Uhlík

DISCUSSIONS

13:30 – 14:30
Lunch – Mensa
SECTION 3B - SESSION 3

Friday 17th June 2011
14:30 – 16:00
Hall 5

3B.17. Service sharing among IMS domains
Tomas Kovacik, Ivan Kotuliak

3B.18. An approach for finding proper packet size in IPv6 Networks
Delyan Genkov

3B.19. Quality of Service Models for Mobile Ad-hoc Networks
Peter Magula, Margaréta Kotočová

Cándido Caballero-Gil, Jezabel Molina-Gil, Pino Caballero-Gil, F. Martín-Fernández, D. Yanes-García

3B.21. Reputation Lists and Groups to Promote Cooperation
J. Molina-Gil, C. Caballero-Gil, P. Caballero-Gil

Tasho Tashev, Vladimir Monov

DISCUSSIONS
SECTION 4

Educational Aspects of Computer Systems and Technologies

Chairs: Hilda Tellioglu
Co-chairs: Douglas Harms
Scientific Secretary: Galina Ivanova

SECTION 4 - SESSION 1

Friday 17th June 2011
09:00 – 11:00
HALL 6

KEYNOTE SPEAKER

DIMITRIS KARAGIANNIS
University of Vienna

Lecture on: Model-Driven Design applied for e-Learning: Results and Experiences from European Research Projects

4.1. Approaches to integration of the dichotomic tables in computer applications for the needs of electronic and mobile learning in the field of biological sciences
Radoslav Miltchev, Evgeni Tsavkov, Galin Milchev

4.2. Assessment of language skills weaknesses and their confrontation through personalized e-Lessons
Nikitas N. Karanikolas, Michael Gr. Vassilakopoulos

4.3. Influence of Memory Modelling on the Simulation of Information and Knowledge Sharing in E-Learning Networks
Wladimir Bodrow, Markus Helfert, Martin Steinicke

4.4. Communication Performance of a Recirculative Omega High-Speed System Area Network for HPC
Plamenka Borovska, Desislava Ivanova

4.5. E = MA2 (E-Learning in a Moodle-based Adaptive and Accumulative System)
Hristo Indzhov, George Totkov, Rositsa Doneva

4.6. Adaptive Test System Based on Revised Bloom’s Taxonomy
Mariana Raykova, Hristina Kostadinova, George Totkov

DISCUSSIONS
SECTION 4 - SESSION 2

Friday 17th June 2011
11:30 – 13:30
HALL 6

4.7. A Framework for Automated Generation of Examination Questions from Web Based Semantically Treated Search Results
   Horst Liske

   Majlinda Fetaji, Bekim Fetaji

4.9. Developing and Analysing a Mobile Learning Knowledge Management System
   Bekim Fetaji, Mirlinda Ebibi, Majlinda Fetaji

4.10. Studying Possibilities to Use Several Experts’ Maps in the Concept Map Based Knowledge Assessment System
      Alla Anohina-Naumeca, Sigita Milasevicha

4.11. Evaluation of Learning Styles Adaption in the ADOPTA E-learning Platform
      Dessislava Vassileva

4.12. Modes of classroom assessment in computer science
      Hilda Tellioglu

4.13. Personal Robots in CS1: Implementing the Myro API in Java
      Douglas Harms

4.14. Phonetic Database for Automated Generating of Logopedic Exercises
      Vania Sivakova, George Totkov, Dimitar Blagoev

DISCUSSIONS

13:30 – 14:30
Lunch – Mensa
SECTION 4 - SESSION 3

Friday 17th June 2011
14:30 – 16:00
HALL 6

4.15. Semi-Automatic Testing of Program Codes in the High School Student Maturity Exam
Valentina Dagiene, Bronius Skupas

4.16. The Novice Problem in Computer Science
Ásrún Matthíasdóttir, Hrafn J. Geirsson

4.17. User Authoring in Learning-by-Doing Situations
Danail Dochev, Gennady Agre, Radoslav Pavlov

4.18. Schematic Diagram Editor and Simulator on Reliability and Diagnostics of Computer Systems
Galina Ivanova, Aneliya Ivanova, Ivailo Ivanov

4.19. Validation of a Multi-criteria Model Used to Evaluate M-Learning Applications Quality
Catalin Boja, Lorena Bătăgan, Adrian Visoiu

4.20. Wiki Usage in Team Assignments for Computer Science Students
Zoran Putnik, Zoran Budimac, Živana Komlenov, Mirjana Ivanovic, Klaus Bothe

4.21. Software System for E-publishing in Medical Domain
Žarko Bodroški, Srđan Škrbić, Živana Komlenov, Mirjana Ivanovic

DISCUSSIONS
Mini-symposium
"ASTROINFORMATICS"

Chair: **Dimo Dimov**
Co-chair: **Vasil Kolev**
Scientific Secretary: **Alexander Dimov**

Friday 17th June 2011
10:15 – 11:00
Hall 3

5.1. Compressed sensing of astronomical images: Orthogonal Wavelets – domain*
**Vasil Kolev**

5.2. Cumulative Approach Using Hough Transform to Segmentation of Star Chains in Multi-Exposures Wide-Field Plate Images
**Dimo Dimov, Aleksandar Dimov**

5.3. Quantization Opportunities for Polyharmonic Subdivision Wavelets Applied to Astronomical Images
**Ognyan Kounchev, Damyan Kalaglarsky**

**DISCUSSIONS**

11:00 – 11:30
Coffee Break – Ground Floor
Workshop
"SERVICE-ORIENTED AND CLOUD COMPUTING"

Chairs: Sylvia Ilieva
Co-chairs: Milen Petrov
Scientific Secretary: Stavros Stavru

Friday 17th June 2011
11:30 – 12:45
Hall 3

6.1. ADOPTA Model of Learner and Educational Game Structure
Adelina Aleksieva-Petrova, Milen Petrov

6.2. jQRSS: a jQuery plugin for RSS and Atom feeds parsing
Dessislava Petrova-Antonova, Rosen Simov

6.3. Managing Change in Self-Adaptive Software Systems
Stavros Stavru

6.4. Software Reliability Assessment via Fuzzy Logic Model
Olga Georgieva, Aleksandar Dimov

6.5. Towards Automated Robustness Testing Of Bpel Orchestrators
Denitsa Manova, Sylvia Ilieva, Francesca Lonetti, Antonia Bertolino,
Cesare Bartolini

DISCUSSIONS

13:30 – 14:30
Lunch – Mensa
Friday 17th June 2011
16:00
HALL 2

The CHAIRS of the PROGRAMME COMMITTEE and the ORGANIZING COMMITTEE will bestow a CRYSTAL PRIZE to the authors of the best papers.

Friday 17th June 2011
16:30
HALL 2

Meeting of the PROGRAMME COMMITTEE and ORGANIZING COMMITTEE and the chairs of each sections of the CompSysTech’11
The Summerstage is located directly on the Danube canal in the centre of Vienna. It’s part of Vienna’s first wining & dining, culture, and fitness mile with beach volleyball courts along the 17.3 km (10.7 miles)-long canal.
The wine tavern Zawodsky is a traditional Heuriger, located in the green and vineyard-cloaked district of Grinzing in the northern stretches of Vienna. The tart wine served is best mixed with soda water (the common practice at a Heuriger), while the hearty buffet, which offers fresh spreads, breads, salads, and roast meats, requires more than one visit. There's occasional live music.
The project ETN TRICE has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use, which may be made of the information contained therein.