DCU is a young, dynamic and ambitious university with a distinctive mission to transform lives and societies through education, research and innovation. Since admitting its first students in 1980, DCU has grown in both student numbers and size and now occupies a 72 acre site in Glasnevin, just north of Dublin city.

H Building (School of Nursing – Halls HG 22, HG 08, HG 10, HG 19)
Dear Participants,

WIRELESS access will be provided via EDUROAM and by password (you will get the password on the registration).
- **CONFERENCE OBJECTIVE**

The *CompSysTech’15* International Conference is organized by THE ASSOCIATION FOR COMPUTING MACHINERY (N.Y., USA) and by THE BULGARIAN ACADEMIC SOCIETY OF COMPUTER SYSTEMS AND INFORMATION TECHNOLOGIES and its OBJECTIVE is to intensify the information exchange of results in theoretical research and practical developments in this field.

*CompSysTech’15* is organized under the patronage of:

- EUROPEAN COMMISSION - Education, Audiovisual and Culture Executive Agency
- John Atanasoff Union of Automation and Informatics
- Bulgarian Academy of Sciences;
- Bulgarian Chapter of IEEE Computer Society;
- Bulgarian Chapter of IEEE Communications Society.

- **INTERNATIONAL PROGRAMME COMMITTEE**

- Honorary Co-Chairs:
  - Kiril Boyanov (Member of BAS, DSc., Bulgaria)
  - Vassil Sgurev (Member of BAS, DSc., Bulgaria)

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  - Boris Rachev (QUERBIE Inc. MA USA)

- Scientific Secretary:
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  - Antonio Mendes (Portugal)  
  - Avram Eskenazi (Bulgaria)  
  - Bojan Cestnik (Slovenia)  
  - Boris Novikov (Russia)  
  - Candelaria Hernandez Goya (Spain)  
  - Christian-Andreas Schumann (Germany)  
  - Constantinos Pattichis (Cyprus)  
  - Dana Petcu (Romania)  
  - Danail Dochev (Bulgaria)  
  - Daniela Chuda (Slovakia)  
  - Diana Kalibatliene (Lithuania)  
  - Dieter Wuttke (Germany)  
  - Dimitris Karagiannis (Austria)  
  - Douglas Harms (United States)  
  - Erika Asnina (Latvia)  
  - Eugenijus Macikenas (Lithuania)  
  - George Totkov (Bulgaria)  
  - Georgi Gluhchev (Bulgaria)
  
  - Jouni Ikonen (Finland)  
  - Jukka Teuhola (Finland)  
  - Juliana Peneva (Bulgaria)  
  - Karl Jones (United Kingdom)  
  - Kostadin Kratchanov (Turkey)  
  - Krassen Stefanov (Bulgaria)  
  - Ladislav Hudec (Slovakia)  
  - Leon Rothkrantz (Netherlands)  
  - Leonee Kirolov (Bulgaria)  
  - Lyudmil Dakovski (Bulgaria)
  - Marco Porta (Italy)  
  - Margarita Todorova (Bulgaria)  
  - Maria Jose Marcelino (Portugal)  
  - Marite Kirikova (Latvia)  
  - Markus Helfert (Ireland)  
  - Martin Llamas Nistal (Spain)  
  - Michael Vassilakopoulos (Greece)  
  - Milena Dobreva (Malta)  
  - Mirjana Ivanovic (Serbia)  
  - Novuz Allahverdi (Turkey)
  - Neli Maneva (Bulgaria)  
  - Olegas Vasilecas (Lithuania)  
  - Pavol Navrat (Slovakia)  
  - Peter Stanchev (United States).
Georgi Todorov (Bulgaria)  Pino Caballero-Gil (Spain)
Grisha Spasov (Bulgaria)  Radi Romansky (Bulgaria)
Gundars Alksnis (Latvia)  Radu Dobrin (Sweden)
Hannu Jaakkola (Finland)  Rebecca Bartlett (United Kingdom)
Hilda Tellioglu (Austria)  Stavros Nikolopoulos (Greece)
Howard Duncan (Ireland)  Steven Beaty (United States)
Iliya Georgiev (United States)  Stoicho Stoichev (Bulgaria)
Ivan Jelinek (Czech Republic)  Tadeusz Morzy (Poland)
Janis Grundspenkis (Latvia)  Tanja Urbancic (Slovenia)
Janusz Jablonowski (Poland)  Tzvetomir Vassilev (Bulgaria)
Jaroslav Pokorny (Czech Republic)  Ville Leppanen (Finland)
Jiri Srba (Denmark)  Vladimir Lazarov (Bulgaria)
Jordan Kolev (Bulgaria)  Yannis Manolopoulos (Greece)

✦ ORGANIZING COMMITTEE

- Co-Chairs:
  Angel Smrikarov (Bulgaria)
  Markus Helfert (Ireland)

- Secretary:
  Eugenia Dimitrova (Bulgaria)
  Thoa Pham (EIURA, Ireland)

- Members:
  Stoyanka Smrikarova (Bulgaria)  Ray Walshe (Ireland)
  Tzvetozar Georgiev (Bulgaria)  Howard Duncan (Ireland)
  Yordan Kalmukov (Bulgaria)  Plamen Petkov (Ireland)

✦ TOPICS

2. Computer Systems (Software).
4. Educational Aspects of Computer Systems and Technologies

CompSysTech’15 Co-Event –
Workshop „Advances in high performance services for digital, multilingual education (AHPISDME)“
Thursday, 25th June 2015

09:00 – 09:30
14:30 – 15:00
Hall HG 22
REGISTRATION

15:00
Hall HG 22
OPENING
WELCOME
Chair: Marcus Helfert

MUSICAL GREETING
PLENARY SESSION

Chair: Boris Rachev

JAROSLAV POKORNY
Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
http://www.ksi.mff.cuni.cz/~pokorny/

Database technologies in the world of Big Data

VALERI MARINOV
North Dakota State University, USA
http://www.ndsu.edu/ndsu/marinov/

The Things in the Internet of Things: A Technologist's Perspective

RORY O'CONNOR
School of Computing, Dublin City University, Ireland
http://www.computing.dcu.ie/~roconnor/

Software and Systems Engineering Standards: A Contributor's Perspective

DISCUSSIONS

17:00 – 18:00
Hall HG 22
REGISTRATION
### PROGRAMME SUMMARY

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<td>Information Systems and Information Retrieval (1)</td>
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<td>Computer Graphics and Image Processing</td>
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All halls are on the ground floor of the School of Nursing.
Session A

Chair: Georgi Todorov  
Co-Chair: Dieter Wuttke  
Scientific Secretary: Daniel Herfert

Friday, 26\textsuperscript{th} June 2015  
09:00 – 11:00  
Hall HG 08

SIMULATION AND MODELING

1. Better workflow modelling of production processes. Re-engineering enterprise, resource and material planning in computational logistics  
   Steinar Kristoffersen

2. Dynamic Routing Using Maximal Road Capacity  
   Leon Rothkrantz

   Kumaran Rajarathianm, J. Barry Gomm, Karl O. Jones, DingLi Yu.

4. “Good Vibrations” – A complete software solution for experimental, operational modal analysis and operating deflection shapes  
   Daniel Herfert, Maik Gollnick

5. Interactive environment for implementation and simulation of quantum algorithms  
   Nikolay Raychev, Elena Racheva

DISCUSSIONS

11:00 – 11:30  
Coffee Break - Foyer
Session B1

Chair: Krassen Stefanov
Co-Chair: Janusz Jabłonowski
Scientific Secretary: Ventsislav Nikolov

Friday, 26th June 2015
11:30 – 13:30
Hall HG 08

SOFTWARE ENGINEERING (1)

1. A Comparison of Security Assurance Support of Agile Software Development Methods
Kalle Rindell, Sami Hyrynsalmi, Ville Leppänen

2. Mitigating issues in Global Software Developments by means of Mentoring
Cristina Casado-Lumbreras, Ricardo Colomo-Palacios

3. Software Metrics in Students’ Software Development Projects
Pekka Mäkiaho, Timo T. Poranen, Ari Seppi

4. Metrics for Automated Testability of Web Applications
Miroslav Bures

5. Reusability Based Program Clone Detection - Case Study on Large Scale Healthcare Software System
Petri Pulkkinen, Johannes Holvitie, Olli S. Nevalainen, Ville Leppänen

6. Compliance check software system
Ventsislav Nikolov

DISCUSSIONS

13:30 – 14:30
Lunch
Session B2

Chair: Valentina Dagiene
Co-Chair: Peter Kaczmarski
Scientific Secretary: Dimitar Birov

Friday, 26th June 2015
14:30 – 16:00
Hall HG 08

SOFTWARE ENGINEERING (2)

1. Duplicate Code Detection Algorithm
   Todor Cholakov, Dimitar Birov

2. Towards an extensible, modular compiler construction with scalable abstractions and types
   Jari-Matti Mäkelä, Ville Leppänen

USING IT TO IMPROVE BUSINESS AND LIFE

1. Linking physical activities and video games
   Jouni Ikonen, Petri Ryhänen, Janne Parkkila, Antti Knutas

2. Navigation Support for Old and Handicapped Persons in Urban Regions
   Alfred Iwainsky

3. Mobile Business Intelligence Adoption (Case of Croatian SMEs)
   Ivana Dubravac, Vanja Bevanda

4. Using a Mobile App to Improve Performance of Management of Services Orders and Teams Processes
   Paulo R. M. Andrade, Adriano B. Albuquerque, Otávio F. Frota, Mirko A. N. Morais

5. A novel approach for accessing WEB services based on multi touch interaction with NFC smart posters
   Rosen Ivanov

DISCUSSIONS
Session C1

Chair: Olegas Vasilecas
Co-Chair: Iulian Intorsureanu
Scientific Secretary: Borislav Banchev

Friday, 26th June 2015
09:00 – 11:00
Hall HG 10

INFORMATION SYSTEMS and INFORMATION RETRIEVAL (1)

1. Architecture of Automated Communication and Data Processing System for Forensic Medicine
   Borislav Banchev, Tsvetozar Georgiev

2. Solution for Content Interoperability among Digital Libraries for Orthodox Artefacts and Knowledge
   Desislava Paneva-Marinova, Maxim Goynov, Detelin Luchev, Radoslav Pavlov

3. RefUTU - Automatic Bibliography Database Generation for Freely Formatted Reference Listings
   Johannes Holvitie, Ville Leppänen

4. Cloud-Based Bibliometric Analysis Service for Systematic Mapping Studies
   Antti Knutas, Arash Hajikhani, Juho Salminen, Jouni Ikonen, Jari Porras

5. Answering Questions Based on Gradually Learned Knowledge from the Web Using Lightweight Semantics
   Lukas Loch, Pavol Navrat, Alena Kovarova

   Martin Nehez, Dusan Bernat, Martin Klauco

DISCUSSIONS

11:00 – 11:30
Coffee Break - Foyer
Session C2

Chair: Virginio Cantoni
Co-Chair: Irena Valova
Scientific Secretary: Ivo Marinchev

Friday, 26th June 2015
11:30 – 13:30
Hall HG 10

INFORMATION RETRIEVAL (2)

1. On Speeding Up the Implementation of Nearest Neighbour Search and Classification
   Ivo Marinchev, Gennady Agre

2. Grouping Instances in kNN for Classification Based on Computer Mouse Features
   Daniela Chudá, Peter Krátky

3. Graph-based music recommendation approach using Social Network Analysis and community detection method
   Dmitry Dolgikh, Ivan Jelínek

4. A Graph-based Model for Malicious Code Detection Exploiting Dependencies of System-call Groups
   Stavros D. Nikolopoulos, Iosif Polenakis

5. Big Data in Electricity-Visualization Aspect
   Ilir Keka, Betim Çiço

COMPUTER GRAPHICS AND IMAGE PROCESSING

1. Segmentation and feature extraction in capillaroscopic videos
   Emiliano Spera, Domenico Tegolo, Cesare Valenti

2. Portable Knitting Format - XML-based Language for Knitting Symbols Description
   Elena Zaharieva-Stoyanova, Stefan Bozov

DISCUSSIONS

13:30 – 14:30
Lunch
Session D

Chair: Aleksander Sudnitson
Co-Chair: Jordan Kolev
Scientific Secretary: Ivan Buliev

Friday, 26th June 2015
14:30 – 16:00
Hall HG 10

HARDWARE

1. Early-zero 4-Phase Micro-Pipeline Controller with Protection
   Dimitar Tyanev, Yulka Petkova

2. Imitation learning of robots by integrating Microsoft Kinect and PID
   Controller with a sensor for angular displacement in a robot joint
   Rositsa Botzova, Anna Lekova, Ivan Chavdarov

3. Comparison of Two Methods for Computing FPGA-based Weighted
   Average Linear Spatial Filters
   Ivan Kanev

OPERATING SYSTEMS AND COMPUTER NETWORKS

1. Diversification of System Calls in Linux Kernel
   Samuel Laurén, Sampsa Rauti, Ville Leppänen

2. Distributed Firewall Using PKI in Mobile Ad Hoc Networks
   Jozef Filipek, Ladislav Hudec

3. A Performance Analysis of IPSec/AH protocol for Automotive Environment
   Jan Lastinec, Ladislav Hudec

DISCUSSIONS
Session E1

Chair: Ali Güngör  
Co-Chair: Rositsa Doneva  
Scientific Secretary: Diana Grigorova

Friday, 26th June 2015  
09:00 – 11:00  
Hall HG 19

WORKSHOP  
"Advances in high performance services for digital, multilingual education"  
(AHPISDME)

1. Does the Choice of the First Programming Language Influence Students’ Grades?  
   Mirjana Ivanović, Zoran Budimac, Miloš Radovanović, Miloš Savić

2. Rethinking Teaching and Assessing in a Programming Course. A case study  
   Ásrún Matthíasdóttir, Hallgrímur Arnalds

3. E-Learning and MOOCs: a Short Investigation in the Context of the FETCH European Thematic Network  
   Betim Cico, Marco Porta

4. Automated Social Network Analysis of Online Student Collaboration Activity  
   Krzysztof Jankowski, Antti Knutas, Jouni Ikonen, Jari Porras

5. QTvity: Advancing Students’ Engagement during Lectures by Using Mobile Devices  
   Bojan Cestnik, Marko Bohanec, Tanja Urbančič

6. Reasons for academic dishonesty in a traditional and a partially online environment: A survey  
   Danijela Jakšić, Patrizia Poščić

DISCUSSIONS

11:00 – 11:30  
Coffee Break - Foyer
Session E2

Chair: **Margarita Todorova**
Co-Chair: **Douglas Harms**
Scientific Secretary: **Maja Matetic**

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**Friday, 26th June 2015**
11:30 – 13:30
Hall HG 19

**WORKSHOP**

"Advances in high performance services for digital, multilingual education"
(AHPISDME)

1. **Multi-touch Interaction Techniques to Control 3D Objects on a Smartphone Screen**
   *Filip Hlaváček, Alena Kovárová*

2. **Applying graph-based data mining concepts to the educational sphere**
   *András London, Áron Pelyhe, Csaba Holló, Tamás Németh*

3. **Mining Student Data to Assess the Impact of Moodle Activities and Prior Knowledge on Programming Course Success**
   *Sabina Šišović, Maja Matetić, Marija Brkić Bakarić*

4. **Association Rule Mining and Visualization of Introductory Programming Course Activities**
   *Maja Matetic, Marija Brkic Bakaric, Sabina Sisovic*

5. **Text Mining Student Reports**
   *Marija Brkic Bakaric, Maja Matetic, Sabina Sisovic*

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**DISCUSSIONS**

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13:30 – 14:30
Lunch
Friday, 26th June 2015  
16:15  
Hall HG 22  

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

Friday, 26th June 2015  
16:45  
Hall HG 22  

Meeting of the PROGRAMME COMMITTEE and ORGANIZING COMMITTEE and the chairs of each sections of the CompSysTech’15
DUBLIN CITY UNIVERSITY

Accommodation
COLLEGE PARK

REGENCY HOTEL
Wednesday, 24th June 2015, 19:30

SOCIAL EVENING IN CELTIC NIGHT - IN THE ARLINGTON HOTEL

Thursday, 25th June 2015, 19:30

SOCIAL EVENING IN THE 1838 CLUB IN ALBERT COLLEGE
Paintings from DUBLIN
Paintings from DUBLIN