

ACM SAC 2019

The 34th Annual ACM Symposium on Applied Computing

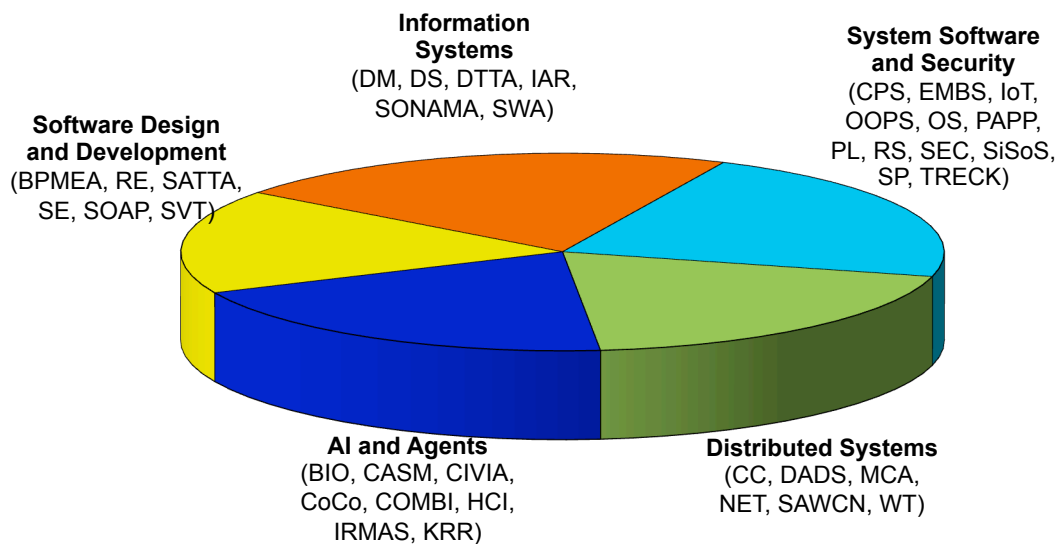
PROCEEDINGS OF THE 2019 ACM
SYMPOSIUM ON APPLIED COMPUTING

Limassol, Cyprus
April 8-12, 2019

Organizing Committee

Achilleas Achilleos
Alessio Bechini
Junyoung Heo
Chih-Cheng Hung
Seiji Isotani
Georgia Kapitsaki

John Kim
Christos Mettouris
Armin R. Mikler
George A. Papadopoulos
Hossain Shahriar
Dongwan Shin



Hosted by
University of Cyprus, Cyprus

******* SAC 2019 at Glance *******

Monday 4/8/2019	Tuesday 4/9/2019	Wednesday 4/10/2019	Thursday 4/11/2019	Friday 4/12/2019
Tutorial Sessions (9:00-12:30) Coffee Break (10:30-11:00)	Opening Remarks (9:00-9:25) Keynote Session (9:25-10:40) Coffee Break (10:40-11:10) AM Breakout Sessions (11:10-12:50)	AM Breakout Sessions (9:00-10:40) Coffee Break (10:40-11:10) AM Breakout Sessions (11:10-12:50) AM Posters Sessions (10:40-12:50)	Keynote Session (9:25-10:40) Coffee Break (10:40-11:10) AM Breakout Sessions (11:10-12:50)	AM Breakout Sessions (9:00-10:40) Coffee Break (10:40-11:10) AM Breakout Sessions (11:10-12:25)
SAC Luncheon for all (tutorial) Registered Attendees (12:30-14:30) (Location: Conference venue)	SAC Luncheon for all Registered Attendees (12:50-14:20) (Location: Conference venue)	SAC Luncheon for all Registered Attendees (12:50-14:20) (Location: Conference venue)	SAC Luncheon for all Registered Attendees (12:50-14:20) (Location: Conference venue)	SAC Luncheon for all Registered Attendees (12:50-14:20) (Location: Conference venue)
Tutorial Sessions (14:30-18:00) Coffee Break (16:00-16:30)	PM Breakout Sessions (14:20-16:00) SRC Posters Exhibit (14:30-18:00) Coffee Break (16:00-16:30) PM Breakout Sessions (16:30-18:35)	PM Breakout Sessions (14:20-16:00) PM Posters Sessions (16:00-18:10) Coffee Break (16:00-16:30) PM Breakout Sessions (16:30-18:35)	PM Breakout Sessions (14:20-16:00) SRC Oral Presentations (14:30-16:30) Coffee Break (16:00-16:30) PM Breakout Sessions (16:30-18:10)	PM Breakout Sessions (14:20-16:25)
	SIGAPP Annual Business Meeting (18:40-19:30) (Atrium B Room) SIGAPP Reception (19:30-21:00) (Location: Panorama Room)	Future SAC Organization Meeting (18:40-19:30) (Location: Atrium B Room)	Track Chairs Business Meeting (<u>working lunch</u>) (13:10-14:00) (Conference venue) SAC Banquet (18:30-23:30)	

****** SAC 2019 Session Schedule ******

Monday April 8, 2019				
<i>Tutorial Sessions – Please see more on Tutorials Page</i>				

Tuesday April 9, 2019				
Room	9:00 - 10:40am	11:10am - 12:50pm	2:20 - 4:00pm	4:30 – 6:35pm
Megaron Alpha	Opening Remarks (9:00am) Keynote Address (9:25am) <i>Panorama</i>	SEC-1 (4)	SEC-2 (4)	SEC-3 (2)+UE (2)
Megaron Beta		DAPP-1 (4)	DAPP-2 (4)	PDP (5)
Megaron Gamma		IRMAS-1 (4)	IRMAS-2(3)+KRR1(1)	KRR-2 (5)
Atrium B		BPMEA-1 (4)	BPMEA-2 (3)	SP (3)
Atrium A		DM-1 (4)	DM-2 (2)+DLHWP(2)	DBDM (5)
Panorama			SRC Poster Presentations (2:30pm – 6:00pm)	
SIGAPP Business Meeting (6:40pm – 7:30pm) at Atrium B				
SIGAPP Welcome Reception (7:30pm - 9:00pm) at Panorama				

Wednesday April 10, 2019				
Room	9:00 - 10:40am	11:10am - 12:50pm	2:20 - 4:00pm	4:30 – 6:35pm
Megaron Alpha	IoT-1 (4)	IoT-2 (3)	CPS (4)	EMBS (5)
Megaron Beta	DADS-1 (4)	DADS-2 (4)	NET (4)	MCA (5)
Megaron Gamma	KLP-1 (4)	KLP-2 (4)	KLP-3 (2)	KomIS (5)
Atrium B	SVT-1 (4)	SVT-2 (4)	SE-1 (4)	SE-2 (4)
Atrium A	SONAMA-1 (4)	SONAMA-2 (4)	GIA (4)	IAR (5)
Panorama	AM Posters Display Session (10:40am – 12:50pm)		PM Posters Display Session (4:00pm – 6:10pm)	
Future SAC Organization Meeting (6:40pm – 7:30pm) at Atrium B				

Thursday April 11, 2019				
Room	9:25 - 10:40am	11:10am - 12:50pm	2:20 - 4:00pm	4:30 – 6:10pm
Megaron Alpha	Keynote Address (9:25am) Panorama	OS-1 (4)	OS-2 (3) + WT-1 (1)	WT-2 (4)
Megaron Beta		WCN-1 (4)	WCN-2 (3) + NGPS (1)	CCNIV (3)
Megaron Gamma		MLA-1 (4)	MLA-2 (4)	MLA-3 (3)

Atrium B		SE-3 (4)	SE-4 (2) + RE-1 (2)	RE-2 (3)
Atrium A		SWA-1 (4)	SWA-2 (4)	SiSoS(2)
Panorama			SRC Oral Presentations (2:30pm – 4:30pm)	
Track Chair Meeting (working lunch, 1:10pm – 2:00pm)				
SAC Banquet Dinner including City Tour (6:30pm – 11:00pm)				

Friday April 12, 2019				
Room	9:00 - 10:40am	11:10am - 12:50pm	2:20 - 4:25pm	
Megaron Alpha	PL-1 (4)	PL-2 (2) + CC-1(1)	CC-2 (5)	
Megaron Beta	HCI (4)	WICE (4)	HI (5)	
Megaron Gamma	SFECS (4)	MiDOS (4)	SATTA (5)	
Atrium B	BIO (4)	VSPLE (3)	RS (5)	
Atrium A	DS (4)	CIVIA (3) + COMBI(1)		

SAC 2019

Introduction

SAC 2019 is a premier international conference on applied computing and technology. Attendees have the opportunity to hear from expert practitioners and researchers about the latest trends in research and development in their fields. SAC 2019 features two keynote speakers on Tuesday and Thursday, from 9:25 to 10:40, respectively. The technical program of the symposium consists of tutorial sessions, regular research paper sessions, poster sessions, and Microsoft-sponsored student research competition (SRC) sessions. Four tutorials are offered on Monday 8th, 2019, and 258 research papers in 46 tracks with different research topics are presented from Tuesday April 9th through Friday April 12th, 2019. The sessions for regular research papers start at 9:00 and end at 18:35 (except for Friday when they end at 16:25). Two poster tracks also run on Wednesday April 10th, from 10:40 to 12:50 and from 16:00 to 18:10. Finally, SRC posters display session runs on Tuesday from 14:30 to 18:00 and SRC Presentations session runs on Thursday from 14:30 to 16:30.

ACM SIGAPP

The ACM Special Interest Group on Applied Computing is ACM's primary applications-oriented SIG. Its mission is to further the interests of the computing professionals engaged in the development of new computing applications and applications areas and the transfer of computing technology to new problem domains. SIGAPP offers practitioners and researchers the opportunity to share mutual interests in innovative application fields, technology transfer, experimental computing, strategic research, and the management of computing. SIGAPP also promotes widespread cooperation among business, government, and academic computing activities. Its annual Symposium on Applied Computing (SAC) provides an international forum for presentation of the results of strategic research and experimentation for this interdisciplinary environment. SIGAPP membership fees are: \$15.00 for ACM Non-members, \$15.00 for ACM Professional Members, and \$8.00 for ACM Student Members. For further information on SIGAPP, please

contact Jiman Hong at jiman@ssu.ac.kr or visit the SIGAPP website at <http://www.acm.org/sigapp>.

Support

The SRC Program of SAC 2019 is sponsored by Microsoft Research.

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Symposium Chair Message

Chih Cheng Hung

Kennesaw State University, Kennesaw, GA, USA

George Algelo Papadopoulos

University of Cyprus, Nicosia, Cyprus

On behalf of the Organizing Committee, we welcome you to the 34th Annual ACM Symposium on Applied Computing (SAC 2019), hosted by the University of Cyprus. This international forum has been dedicated to computer scientists, engineers and practitioners for the purpose of presenting their research findings and results in various areas of applied computing. The organizing committee is grateful for your participation in this exciting international event. We hope that this conference proves interesting and beneficial for all of you.

The Symposium is sponsored by the ACM Special Interest Group on Applied Computing (SIGAPP), whose mission is to further the interests of computing professionals engaged in the design and development of new computing applications, interdisciplinary applications areas, and applied research. This conference is dedicated to the study of applied computing research of real-world problems. In addition, this event provides an avenue to discuss and exchange new ideas in the wide spectrum of applied computing areas. We all recognize the importance of updating the latest developments and research in our current areas of expertise.

SAC 2019 offers Technical Tracks and Poster Sessions. The success of the conference can be attributed to the substantial contribution of dedicated Track Chairs and Co-Chairs. Each track maintains a program committee and a set of highly qualified

reviewers. We wish to thank the Track Chairs, Co-Chairs, Committee Members and participating reviewers for their hard work and effort to make the SAC 2019 conference a high quality conference. We also thank our invited keynote speakers, Professor Jocelyn Chanussot from the Grenoble Institute of Technology (Grenoble INP), Grenoble, France, and Yiorgos (George) Chrysanthou from the University of Cyprus, Cyprus, for sharing their knowledge and expertise with SAC 2019 attendees. Most of all, I would like to especially thank the authors and presenters for sharing their experience with the rest of us and to all attendees for joining us in Limassol, Cyprus this year.

The local organizing committee has been a major contributor to the success of the SAC 2019 conference. Our gratitude goes to the local arrangement team, led by George A. Papadopoulos (Conference Co-Chair), including Georgia Kapitsaki (Tutorial Chair), Christos Mettouris (Local Arrangement Chair), and Achilleas Achilleos (Posters Co-Chair) from the University of Cyprus, Cyprus. We also extend our thanks to the Publication Chair, Hossain Shahriar, Kennesaw State University, USA, for his tremendous effort in putting together the conference proceedings, and Posters Co-Chair, Alessio Bechini, University of Pisa, Pisa, Italy, for his hard work to make a successful Poster Program. Our thanks also go to SRC Chair Armin R. Mikler, Publicity Chair Junyoung Heo, and Treasurer John Kim. A special thanks to our Program Chairs, Dongwan Shin, New Mexico Tech, Socorro, New Mexico, USA, and Seiji Isotani, University of São Paulo, São Paulo, Brazil, for coordinating and bringing together an excellent Technical Program. It is highly appreciated for the financial support of the ACM SIGAPP Chair, Jiman Hong, for our Student Travel Award Program (STAP).

It has been a great pleasure to working with all of you and learning so much from each of you. Again, we welcome you to SAC 2019 in the beautiful city of Limassol, Cyprus. We hope you enjoy the SAC 2019 conference and your stay in Cyprus.

Program Chairs Message

Dongwan Shin

New Mexico Tech, New Mexico, USA

Seiji Isotani

University of São Paulo, São Paulo, Brazil

Welcome to the 34th International Symposium on Applied Computing (SAC 2019). For the past 33 years, SAC has become a major international venue for

computing researchers and applied practitioners to convene and share ideas on recent developments in a variety of applied areas of computer science and information technology. The success of SAC has been the consolidation of a wide range of applied areas into specialized modules called *Tracks*. Each of the Tracks is then organized and administered by experts in the respective areas by instituting program committees, carrying out blind reviews according to the ACM guidelines, and finally selecting highly qualified papers for the Track. Since its inception sixteen years ago, the Poster Sessions at SAC have become a tradition, and this year again the Poster will be an integral part of the Technical Program at SAC 2019.

The open Call for Track Proposals and after prescreening the proposals, 46 Tracks were finally accepted for SAC 2019. The prescreening and selections were made based on the success of those Tracks in the previous SACs as well as targeting new and emerging areas. The Call for Papers for these Tracks attracted 1067 final paper submissions from over 50 different countries. The submitted papers underwent the blind review process and 258 submissions were finally accepted as full papers for inclusion in the Conference Proceedings and presentation during the Symposium. The final acceptance rate for SAC 2019 is (24.2%) for the overall track. In addition to the accepted full papers, 78 submissions that received high enough review scores were accepted as poster papers for the Posters program. The Student Research Competition (SRC) program, sponsored by Microsoft Research, is designed to provide graduate students the opportunity to meet and exchange ideas with researchers and practitioners in their areas of interest. 57 SRC abstract submissions received and finally 16 (28%) submissions were accepted.

The Technical Program of SAC 2019 is made possible through the hard work of many people from the scientific community who have volunteered and committed many hours to make it a success. Much credit goes to all Track Chairs for making SAC 2019 Technical Sessions a huge success. Some of the popular Tracks had an unprecedented submissions and having at least three blind reviews for each paper was certainly a major challenge. Once again this year, we follow the previous years' tradition in organizing various tracks into five different themes. The Symposium Proceedings and the technical presentations are focused around these themes to form a series of related track sessions. On behalf of the entire SAC 2019 Organizing Committee, we congratulate all the authors for having their papers accepted in their respective Tracks, and we wish to thank all of those who made this year's technical program a great success. Specifically, we wish to thank

the speakers, posters chair, SRC chair, track chairs, reviewers, technical program committee members, session chairs, presenters, and all the attendees. We also wish to convey our special thanks to the local organizing committee. We wish you all a pleasant stay in Limassol, Cyprus, and have the opportunity to share and exchange your ideas and foster new collaborations. We also hope to see you at SAC 2020.

SAC 2019 Themes

This year SAC tracks are divided into five themes: tracks with relevant topics are grouped into a theme, and a single room is assigned for one theme for oral presentation. Hence related tracks will take place sequentially in the same room in most cases, so as to promote sharing and cross-fertilization of ideas for the whole audience of a theme. Check the program schedule for details. The five themes of SAC 2019 are listed below:

(AIA) AI and Agents: Tracks: BIO, CIVIA, COMBI, HCI, IRMAS, KLP, KomIS, KRR, MLA

(DS) Distributed Systems: Tracks: CC, CCNIV, DADS, MCA, MiDOS, NET, WCN, WT

(IS) Information Systems: Tracks: DBDM, DLHWB, DM, DS, GIA, HI, IAR, SFECs, SONAMA, SWA, WICE

(SD) Software Design and Development: Tracks: BPMEA, RE, SATTA, SE, SVT, UE, VSPLE

(SSS) System Software and Security: Tracks: CPS, EMBS, IoT, NGPS, OS, PDP, PL, RS, SEC, SiSoS, SP

Keynote Speakers

Tuesday April 9, 2019 9:25 - 10:40

Dr. Jocelyn Chanussot
GIPSA-Lab

Grenoble Institute of Technology
France

***Title: Deep Learning for the Processing of
Hyperspectral Data: Over a Decade of History***

Abstract

Over the past decade, deep learning techniques have been increasingly considered for the processing and analysis of hyperspectral data. A variety of tasks have been addressed, ranging from denoising, dimension

reduction and feature extraction, to spectral unmixing, classification or data fusion. In 2008, the data fusion contest organized by the IEEE Geoscience and Remote Sensing Society served as an early warning milestone: the contest involved the classification of hyperspectral data. Among over 2000 entries to the contest, 9 out of the 10 best performing teams were using SVM and some sort of spectral spatial feature extraction or regularization. But the very best results were actually already achieved by a neural approach. In the following years and even more recently, deep learning techniques systematically dominate all the rankings. In this overview, special attention will be given to autoencoders and convolutional neural networks as well as their recent evolutions. In addition, the current challenges and future directions in the research of hyperspectral data processing will be provided.

Speaker's Bio

Jocelyn Chanussot received the M.Sc. degree in electrical engineering from the Grenoble Institute of Technology (Grenoble INP), Grenoble, France, in 1995, and the Ph.D. degree from the Université de Savoie, Annecy, France, in 1998. In 1999, he was with the Geography Imagery Perception Laboratory for the Delegation Generale de l'Armement (DGA - French National Defense Department). Since 1999, he has been with Grenoble INP, where he is currently a Professor of signal and image processing. He is conducting his research at the Grenoble Images Speech Signals and Automatics Laboratory (GIPSA-Lab). His research interests include image analysis, multicomponent image processing, nonlinear filtering, and data fusion in remote sensing. He has been a visiting scholar at Stanford University (USA), KTH (Sweden) and NUS (Singapore). Since 2013, he is an Adjunct Professor of the University of Iceland. In 2015-2017, he was a visiting professor at the University of California, Los Angeles (UCLA). Dr. Chanussot is the founding President of IEEE Geoscience and Remote Sensing French chapter (2007-2010) which received the 2010 IEEE GRS-S Chapter Excellence Award. He was the co-recipient of the NORSIG 2006 Best Student Paper Award, the IEEE GRSS 2011 and 2015 Symposium Best Paper Award, the IEEE GRSS 2012 Transactions Prize Paper Award and the IEEE GRSS 2013 Highest Impact Paper Award. He was a member of the IEEE Geoscience and Remote Sensing Society AdCom (2009- 2010), in charge of membership development. He was the General Chair of the first IEEE GRSS Workshop on Hyperspectral Image and Signal Processing, Evolution in Remote sensing (WHISPERS). He was the Chair (2009-2011) and Cochair of the GRS Data Fusion Technical Committee (2005-2008). He was a member of the Machine Learning for Signal Processing Technical

Committee of the IEEE Signal Processing Society (2006-2008) and the Program Chair of the IEEE International Workshop on Machine Learning for Signal Processing, (2009). He was an Associate Editor for the IEEE Geoscience and Remote Sensing Letters (2005-2007) and for Pattern Recognition (2006-2008). Since 2007, he is an Associate Editor for the IEEE Transactions on Geoscience and Remote Sensing. He was the Editor-in-Chief of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (2011-2015). In 2013, he was a Guest Editor for the Proceedings of the IEEE and in 2014 a Guest Editor for the IEEE Signal Processing Magazine. He is a Fellow of the IEEE, a member of the Institut Universitaire de France (2012- 2017) and a 2018 Highly Cited Researcher (Clarivate Analytics).

Tuesday April 11, 2019 9:25 - 10:40

Dr. Yiorgos L. Chrysanthou
Computer Science Department
University of Cyprus
Cyprus

Title: Data driven Character Simulation

Abstract

Virtual environments are increasingly present in our lives, with a large number of potential applications. An indispensable component of many of these applications are virtual humans. From training for evacuation through to background scenes for a historical drama, virtual characters provide important context and constraints to the user; they can significantly improve the plausibility of the environment leading to a more realistic response, and ultimately, better understanding of the situation or better entertainment. Increasing processing power due to multicore architectures, improved clock speeds and highly programmable Graphics Processing Units (GPUs), enable designers and programmers to add multitudes of virtual characters in real-time applications. As the real-time rendering of the characters is becoming more and more realistic, there is a considerable gap between the rendering appearance and their simulated behavior. In this presentation we will look at some recent work on data-driven character simulation and animation covering both the simulation of virtual crowds and ambient life as well as the stylistic animation of individual characters.

Speaker's Bio

Yiorgos L. Chrysanthou is a Professor at the Computer Science Department of the University of Cyprus where he is heading the Graphics and Hypermedia lab. He is

also the Research Director of the newly established Centre of Excellence on Interactive Media, Smart Systems and emerging Technologies (RISE). Yiorgos was educated in the UK (Queen Mary College, University of London) and worked for several years as a research fellow and a lecturer at University College London. He has published over 80 papers in journals and international conferences and served as the local or overall coordinator of over 27 research projects, related to 3D graphics, virtual reality and applications. His research interests lie in the general area of 3D Computer Graphics, recently focusing more on computer animation, algorithms for real-time AR and VR rendering and reconstruction of urban environments.

Other Activities

SIGAPP Annual Business Meeting: Tuesday April 9, from 18:40 to 19:30 (Location: Atrium B Room). Open to everyone.

SIGAPP Reception: Tuesday April 9, from 19:30 to 21:00 (Location: Panorama Room). Open to everyone.

Future SAC Organization Meeting: Wednesday April 10, from 18:40 to 19:30 (Location: Atrium B Room). Open to everyone.

Track Chairs Business Meeting (working lunch): Thursday April 11, from 13:10 to 14:00 (Location: Conference venue). Open for the Organizing Committee and (potential) Track Chairs.

SAC Banquet: Thursday April 11, from 18:30 to 23:00 (Buses will leave around 18:30 for City Tour). Open for Banquet Ticket holders. See your tickets for full details.

SAC Best Papers/Best Posters Award: Thursday April 11. During the SAC Banquet Program Chairs and Posters Chair will award one best paper for each of the five themes and best posters of this conference.

SRC Program: The Student Research Competition program includes Poster Display on Tuesday at 14:30 and Oral Presentations on Thursday (Location: Panorama Room). Medals and certificates will be given to the top three winners during the SAC Banquet.

Monday April 8, 2019

Mon 9:00–10:30
Rooms: Megaron Alpha, Megaron Beta

Tutorials
See tutorial pages for more details

Mon 10:30 – 11:00
Coffee Break

Mon 11:00–12:30
Rooms: Megaron Alpha, Megaron Beta

Tutorials, continued

Mon 12:30 – 14:30
Lunch Break
(Conference Venue)

Mon 14:30–16:00
Rooms: Megaron Alpha, Megaron Beta

Tutorials
See tutorial pages for more details

Mon 16:00 – 16:30
Coffee Break

Mon 16:30–18:00
Rooms: Megaron Alpha, Megaron Beta

Tutorials, continued

Tuesday April 9, 2019

TUE 9:25–10:40
Room: Panorama
Keynote Address
Dr. Jocelyn Chanussot
See page 5 for details.

TUE 10:40 – 11:10
Coffee Break

TUE 11:10 – 12:50
Room: Megaron Alpha
(SEC-1) Computer Security
Session Chair: Rosario Giustolisi, IT University of Copenhagen, Denmark

COAUTHENTICATION

Jay Ligatti, Cagri Cetin, Shamaria Engram, Jean-Baptiste Subils and Dmitry Goldgof

ENABLING CHANGE-DRIVEN WORKFLOWS IN CONTINUOUS INFORMATION SECURITY MANAGEMENT

Michael Brunner, Andrea Mussmann and Ruth Breu

A REAL-TIME REMOTE IDS TESTBED FOR CONNECTED VEHICLES

Valentin Zieglmeier, Severin Kacianka, Thomas Hutzelmann and Alexander Pretschner

THE ROP NEEDLE: HIDING TRIGGER-BASED INJECTION VECTORS VIA CODE REUSE

Pietro Borrello, Emilio Coppa, Daniele Cono D'Elia and Camil Demetrescu

TUE 11:10 – 12:50
Room: Megaron Beta
(DAPP-1) Decentralized Applications with Blockchain
Session Chair: Jean-Marc Seigneur, University of Geneva, Switzerland

SMART CONTRACTS IN VIEW OF THE CIVIL CODE

Monika di Angelo, Alfred Soare and Gernot Salzer

DECOUPLES: A DECENTRALIZED, UNLINKABLE AND PRIVACY-PRESERVING TRACEABILITY SYSTEM FOR THE SUPPLY CHAIN

Mourad El Maouchi, Oguzhan Ersoy and Zekeriya Erkin

BUILDING PRIVATE BLOCKCHAINS OVER PUBLIC BLOCKCHAINS (POP): AN ATTRIBUTE-BASED ACCESS CONTROL APPROACH

Dijiang Huang, Chun-Jen Chung, Qiuxiang Dong, Jim Luo and Myong Kang

HYBRID MINING: EXPLOITING BLOCKCHAIN'S COMPUTATIONAL POWER FOR DISTRIBUTED PROBLEM SOLVING

Krishnendu Chatterjee, Amir Kafshdar Goharshady and Arash Pourdamghani

**TUE 11:10 – 12:50
Room: Megaron Gamma**

(IRMAS-1) Intelligent Robotics and Multi-Agent Systems

Session Chair: Rui P. Rocha, University of Coimbra,

CORRELATION CLUSTERING BASED COALITION FORMATION FOR MULTI-ROBOT TASK ALLOCATION

Ayan Dutta, Vladimir Ufimtsev and Asai Asaithambi

DISTRIBUTED ADAPTIVE-NEIGHBORHOOD CONTROL FOR STOCHASTIC REACHABILITY IN MULTI-AGENT SYSTEMS

Anna Lukina, Ashish Tiwari, Scott A. Smolka and Radu Grosu

HIERARCHICAL MULTI-AGENT DEEP REINFORCEMENT LEARNING TO DEVELOP LONG-TERM COORDINATION

Marie Ossenkopf, Kurt Geihs and Mackenzie Jorgensen

TRAIL FORMATION USING LARGE SWARMS OF MINIMAL ROBOTS

Pere Molins and Sabine Hauert

**TUE 11:10 – 12:50
Room: Atrium B**

(BPMEA-1) Business Process Management and Enterprise Architecture

A HYBRID RELIABILITY METRIC FOR SLA PREDICTIVE MONITORING

Marco Comuzzi, Alfonso E. Marquez-Chamorro and Manuel Resinas

CONTROLLABILITY OF BUSINESS PROCESSES WITH TEMPORAL VARIABLES

Johann Eder, Marco Franceschetti and Julius Köpke

OBJECT-CENTRIC BEHAVIORAL CONSTRAINT MODELS: A HYBRID MODEL FOR BEHAVIORAL AND DATA PERSPECTIVES

Guangming Li, Renata Medeiros de Carvalho and Wil M.P. van der Aalst

OPTIMIZING CUSTOMER JOURNEY USING PROCESS MINING AND SEQUENCE-AWARE RECOMMENDATION

Alessandro Terragni and Marwan Hassani

**TUE 11:10 – 12:50
Room: Atrium A**

(DM-1) Data Mining

Session Chair: Elena Baralis, Politecnico di Torino, Italy

AN ANOMALY DETECTION TECHNIQUE FOR BUSINESS PROCESSES BASED ON EXTENDED DYNAMIC BAYESIAN NETWORKS

Stephen Pauwels and Toon Calders

DIRICHLET PROCESS MIXTURE MODELS MADE SCALABLE AND EFFECTIVE BY MEANS OF MASSIVE DISTRIBUTION

Khadija Meguelati, Bénédicte Fontez, Nadine Hilgert and Florent Masseglia

PAIRWISE NORMALIZATION IN SIMRANK VARIANTS: PROBLEM, SOLUTION, AND EVALUATION

Masoud Reyhani Hamedani and Sang-Wook Kim

GRAPH-BASED SELECTIVE OUTLIER ENSEMBLES

Hamed Sarvari, Carlotta Domeniconi and Giovanni Stilo

TUE 12:50 – 14:20

Lunch Break
(Conference venue)

TUE 14:30 – 18:00
SRC Posters Exhibition

PARORAMA

See page 30 for details.

TUE 14:20 – 16:00
Room: Megaron Alpha

(SEC-2) Computer Security
Session Chair: Rosario Giustolisi, IT University of
Copenhagen, Denmark

**A COARSE-GRAINED PASSWORD MODEL
WITH MEMORABLE UNIT-BASED
RECURRENT NEURAL NETWORKS**
Rui Xu, Xiaojun Chen and Jinqiao Shi

SPECTRE WITHOUT SHARED MEMORY
Ben Amos, Niv Gilboa, Arbel Levy and Gabriel
Scalosub

**DETECTION OF ALGORITHMICALLY
GENERATED DOMAIN NAMES USED BY
BOTNETS: A DUAL ARMS RACE**
Jan Spooren, Davy Preuveneers, Lieven Desmet and
Wouter Joosen

**STATIC SECURITY EVALUATION OF AN
INDUSTRIAL WEB APPLICATION**
Gebrehiwet Biyane Welearegai, Max Schlueter and
Christian Hammer

TUE 14:20 – 16:00
Room: Megaron Beta

**(DAPP-2) Distributed Applications
with Blockchain**

Session Chair: Jean-Marc Seigneur, University of Geneva,
Switzerland

**TICKETH, A TICKETING SYSTEM BUILT ON
ETHEREUM**

Pietro Corsi, Giovanni Lagorio and Marina Ribaudo

THE TREewidth OF SMART CONTRACTS
Krishnendu Chatterjee, Amir Kafshdar Goharshady
and Ehsan Kafshdar Goharshady

**ANALYSIS OF ARCHITECTURAL VARIANTS
FOR AUDITABLE BLOCKCHAIN-BASED
PRIVATE DATA SHARING**

Vincent Reniers, Dimitri Van Landuyt, Paolo Viviani,
Riccardo Lombardi, Bert Lagaisse and Wouter Joosen

**MUSCLE: AUTHENTICATED EXTERNAL
DATA RETRIEVAL FROM MULTIPLE
SOURCES FOR SMART CONTRACTS**

Bjorn Van Der Laan, Oguzhan Ersoy and Zekeriya
Erkin

TUE 14:20 – 16:00
Room: Megaron Gamma

**(IRMAS-2) Intelligent Robotics and
Multi-Agent Systems**

Session Chair: Rui P. Rocha, University of Coimbra,
Portugal

**(KRR-1) Knowledge Representation
and Reasoning**

Session Chair: Francesco Sartini, University of Bergamo

**COMMUNICATION-BASED COOPERATIVE
TASKS: HOW THE LANGUAGE
EXPRESSIVENESS AFFECTS
REINFORCEMENT LEARNING**

Jacopo Talamini, Eric Medvet and Alberto Bartoli

**SUPPORT VECTOR REGRESSION BASED
SENSOR LOCALIZATION USING UAV**
Rolif Lima, Kaushik Das and Debasish Ghose

**SUBSPACE CLUSTERING FOR SITUATION
ASSESSMENT IN AQUATIC DRONES**
Alberto Castellini, Francesco Masillo, Manuele
Bicego, Domenico Daniele Bloisi, Jason Blum,
Alessandro Farinelli and Sergio Peigner

**INFERENCE EQUIVALENCE, NORMAL
FORMS, AND ISOMORPHISMS OF
KNOWLEDGE BASES IN INSTITUTIONS OF
CONDITIONAL LOGICS**

Christoph Beierle

TUE 14:20 – 16:00

Room: Atrium B

**(BPMEA-2) Business Process
Management & Enterprise
Architecture**

**STATIC ANALYSIS OF BPMN-BASED
PROCESS-DRIVEN APPLICATIONS**

Konrad Schneid, Sebastian Thöne, Herbert Kuchen,
Claus A. Usener and Christian Tophinke

**TOWARDS A METAMODEL FOR
SUPPORTING DECISIONS IN KNOWLEDGE-
INTENSIVE PROCESSES**

Sheila Katherine Venero, Julio Cesar Dos Reis,
Leonardo Montecchi and Cecilia Mary Rubira

**VIEW: AN INCREMENTAL APPROACH TO
VERIFY EVOLVING WORKFLOWS**

Mohammad Javad Amiri and Divyakant Agrawal

TUE 14:20 – 16:00

Room: Atrium A

(DM-2) Data Mining

Session Chair: Giovanni Stilo, Sapienza Università di
Roma, Italy

**(DLHWB) Digital Life for Human
Well-being**

Session Chair: Giorgia Ramponi, Politecnico di Milano,

**EXPLAINING BLACK BOX MODELS BY
MEANS OF LOCAL RULES**

Eliana Pastor and Elena Baralis

**HIGH-PERFORMANCE PROBABILISTIC
RECORD LINKAGE VIA MULTI-
DIMENSIONAL HOMOMORPHISMS**

Ari Rasch, Richard Schulze, Waldemar Gorus, Jan
Hiller, Sebastian Bartholomäus and Sergei Gorlatch

**ANATOME: ANATOMY TEACHING AND
LEARNING DESIGNED FOR ALL**

Márcia Ferreira, Laura García, André Guedes, Djanira
Veronez, Celia Sandrini and Carlos Araujo

**WEB-BASED AUTHORING OF MULTIMEDIA
INTERVENTION PROGRAMS FOR MOBILE
DEVICES: A CASE STUDY ON ELDERLY
DIGITAL LITERACY**

Bruna Carolina Rodrigues da Cunha, Kamila Rios da
Hora Rodrigues, Isabela Zaine, Leonardo Fernandes
Scalco, Caio Cesar Viel and maria pimentel

TUE 16:00 – 16:30

Coffee Break

TUE 16:30 – 18:35

Room: Megaron Alpha

(SEC-3) Computer Security

Session Chair: Rosario Giustolisi, IT University of
Copenhagen, Denmark

(UE) Usability Engineering

Session Chair: Eduardo Mosqueira-Rey, University of A
Coruna, Spain

SECURE MULTI-EXECUTION IN ANDROID

Dhiman Chakraborty, Christian Hammer and Sven
Bugiel

**TOWARDS AUTOMATED NETWORK
MITIGATION ANALYSIS**

Michael Backes, Joerg Hoffmann, Robert Künnemann,
Patrick Speicher and Marcel Steinmetz

**COGNITIVE WORKLOAD OF IN-CAR
AUDITORY-VOCAL INTERFACES ON
VISUOSPATIAL SKETCHPAD BASED ON A
DUAL TASK OF VISUAL PATTERN TEST**

Takahiro Miura, Ken-ichiro Yabu, Youji Shimizu,
Kenichi Tanaka, Masamitsu Furukawa, Seiko
Michiyoshi, Tetsuya Yamamoto, Kazutaka Ueda and
Tohru Ifukube

**USABILITY PROBLEMS DISCOVERY BASED
ON THE AUTOMATIC DETECTION OF
USABILITY SMELLS**

Rafael Ribeiro, Matheus Souza, Pedro Oliveira and
Pedro Neto

TUE 16:30 – 18:35

Room: Megaron Beta

(PDP) Privacy by Design in Practice

Session Chair: Ronald Petric, Commissioner for Data
Protection Baden-Württemberg, Germany

**ENGINEERING PRIVACY BY DESIGN -
LESSONS FROM THE DESIGN AND
IMPLEMENTATION OF AN IDENTITY
WALLET PLATFORM**

Fatbardh Veseli, Kai Rannenberg and Jetzabel Serna-
Olvera

**PRIVACY-ENHANCED SYSTEM DESIGN
MODELING BASED ON PRIVACY FEATURES**

Amir Shayan Ahmadian, Daniel Strüder and Jan Jürjens

**RECOMMENDER-BASED PRIVACY
REQUIREMENTS ELICITATION -
EPICUREAN: AN APPROACH TO SIMPLIFY
PRIVACY SETTINGS IN IOT APPLICATIONS
WITH RESPECT TO THE GDPR**

Christoph Stach and Frank Steimle

**MIND YOUR WALLET'S PRIVACY:
IDENTIFYING BITCOIN WALLET APPS AND
USER'S ACTIONS THROUGH NETWORK
TRAFFIC ANALYSIS**

Fabio Aiolli, Mauro Conti, Ankit Gangwal and Mirko Polato

**DYNAMIC ATTRIBUTE-BASED PRIVACY-
PRESERVING GENOMIC SUSCEPTIBILITY
TESTING**

Mina Namazi, Cihan Eryonucu, Erman Ayday and Fernando Perez-Gonzalez

**TUE 16:30 – 18:35
Room: Megaron Gamma**

**(KRR-2) Knowledge Representation
and Reasoning**

Session Chair: Francesco Santini, University of Perugia,

**INTERPRETATIONS AND MODELS FOR
ASSUMPTION-BASED ARGUMENTATION**

Samy Sá and João Alcântara

**ON SCALING THE ENUMERATION OF THE
PREFERRED EXTENSIONS OF ABSTRACT
ARGUMENTATION FRAMEWORKS**

Gianvincenzo Alfano, Sergio Greco and Francesco Parisi

**REPRESENTING AND COMPARING LARGE
SETS OF EXTENSIONS OF ABSTRACT
ARGUMENTATION FRAMEWORKS**

Odinaldo Rodrigues

**CONFLICT HISTORY BASED SEARCH FOR
CONSTRAINT SATISFACTION PROBLEM**

Djamal Habet and Cyril Terrioux

**EXPRESSIVE CARDINALITY CONSTRAINTS
ON ALCSCC CONCEPTS**

Franz Baader

TUE 16:30 – 18:35

Room: Atrium B

(SP) Software Platforms

Session Chair: Manhee Lee, Hannam University, Seoul,
Korea

**ANALYSIS OF APPLICATION INSTALLATION
LOGS ON ANDROID SYSTEMS**

Jinwoo Lee, Yena Lee and Jiman Hong

**DESIGN AND IMPLEMENTATION OF
EMULAB-BASED MALWARE ANALYSIS
SERVICE THROUGH EMULIB**

Gibeom Song and Manhee Lee

**ENERGY EFFICIENT IO STACK DESIGN FOR
WEARABLE DEVICE**

Junghoon Kim, Sundoo Kim, Juseong Yun and Youjip Won

TUE 16:30 – 18:35

Room: Atrium A

**(DBDM) Databases and Big Data
Management**

Session Chair: Ramzi A. Haraty, Lebanese American
University, Lebanon

**A NOISE TOLERANT AND SCHEMA-
AGNOSTIC BLOCKING TECHNIQUE FOR
ENTITY RESOLUTION**

Tiago Brasileiro Araújo, Carlos Eduardo Santos Pires, Demetrio Mestre, Thiago Nóbrega, Dimas Cassimiro do Nascimento Filho and Kostas Stefanidis

**AUTHORIZATION-AWARE OPTIMIZATION
FOR MULTI-PROVIDER QUERIES**

Ekaterina Dimitrova, Panos Chrysanthos and Adam Lee

**EFFICIENT SPATIO-TEMPORAL RDF QUERY
PROCESSING IN LARGE DYNAMIC
KNOWLEDGE BASES**

Akrivi Vlachou, Christos Doulkeridis, Apostolos Glenis, Georgios Santipantakis and George Vouras

**MAPREDUCE ALGORITHMS FOR THE K
GROUP NEAREST-NEIGHBOR QUERY**

Panagiotis Moutafis, Francisco García-García, George Mavrommatis, Michael Vassilakopoulos, Antonio Corral and Luis Iribarne

**TOWARD RDB TO NOSQL: TRANSFORMING
DATA WITH METAMORFOSE FRAMEWORK**

Wednesday April 10, 2019

WED 9:00 – 10:40
Room: Megaron Alpha

(IoT-1) Internet of Things

Session Chair: Clementine Gritti, Norwegian University of Science and Technology, Norway

**ICORE: CONTINUOUS AND PROACTIVE
EXTROSPECTION ON MULTI-CORE IOT
DEVICES**

Penghui Zhang, Haehyun Cho, Ziming Zhao, Adam Doupé and Gail-Joon Ahn

**CYPRIOT : FRAMEWORK FOR MODELLING
AND CONTROLLING NETWORK-BASED IOT
APPLICATIONS**

Imad Berrouyne, Massimo Tisi, Jean-Marie MOTTU, Mehdi Adda and Jean-Claude Royer

**AN ARCHITECTURE AND ITS TOOLS FOR
INTEGRATING IOT AND BPMN IN
AGRICULTURE SCENARIOS**

Jordano Celestrini, Renato Rocha, Estêvão Saleme, Celso Santos, José Gonçalves Pereira Filho and Rodrigo Andreão

**ENSEMBLE TREES LEARNING BASED
IMPROVED PREDICTIVE MAINTENANCE
USING IIOT FOR TURBOFAN ENGINES**

Sourajit Behera, Anurag Choubey, Chandresh Shambhubhai kanani, Yashwant Singh Patel, Rajiv Misra and Alberto Sillitti

WED 9:00 – 10:40
Room: Megaron Beta

**(DADS-1) Dependable, Adaptive,
and Secure Distributed Systems**

Session Chair: Karl M. Goeschka, UAS Technikum Vienna, Austria

**DON'T HESITATE TO SHARE! A NOVEL IOT
DATA PROTECTION SCHEME BASED ON BGN
CRYPTOSYSTEM**

Subir Halder and Mauro Conti

**SECURELY DEPLOYING DISTRIBUTED
COMPUTATION SYSTEMS ON PEER-TO-PEER
NETWORKS**

Kobe Vrancken, Frank Piessens and Raoul Strackx

**ADAPTIVE INFORMATION DISSEMINATION
IN THE BITCOIN NETWORK**

João Marçal, Luís Rodrigues and Miguel Matos

**SCALABLE LIGHTNING FACTORIES FOR
BITCOIN**

Alejandro Ranchal Pedrosa, Maria Potop Butucaru and Sara Tucci

WED 9:00 – 10:40
Room: Megaron Gamma

**(KLP-1) Knowledge and Language
Processing**

Session Chair: Mauro Dragoni, FBK, Italy

**A CASE-BASED APPROACH USING
PHONOLOGICAL KNOWLEDGE FOR
IDENTIFYING ERROR PATTERNS IN
CHILDREN'S SPEECH**

Maria Helena Franciscatto, João Carlos Damasceno Lima, Celio Trois, Vinicius Maran, Márcia Keske Soares and Cristiano Cortez da Rocha

**DETECTING RELIABLE NOVEL WORD
SENSES: A NETWORK-CENTRIC APPROACH**

Abhik Jana, Animesh Mukherjee and Pawan Goyal

**EXPLORING LEXICO-SEMANTIC PATTERNS
FOR ASPECT-BASED SENTIMENT ANALYSIS**

Frederique Baas, Olivier Bus, Alexander Osinga, Nikki van de Ven, Steffie van Loenhout, Lisanne Vrolijk, Kim Schouten and Flavius Frasinicar

**FEW-SHOT CLASSIFICATION IN NAMED
ENTITY RECOGNITION TASK**

Alexander Fritzler, Varvara Logacheva and Maksim Kretov

WED 9:00 – 10:40
Room: Atrium B

**(SVT-1) Software Verification and
Testing**

**VERIFICATION-BASED TEST CASE
GENERATION FOR INFORMATION-FLOW
PROPERTIES**

Mihai Herda, Shmuel Tyszberowicz, Joachim Müssig and Bernhard Beckert

DYNAMIC SYMBOLIC EXECUTION FOR THE ANALYSIS OF WEB SERVER APPLICATIONS IN JAVA

Daniel Balasubramanian, Zhenkai Zhang, Dan McDermet and Gabor Karsai

SPECIFICATION OF TEMPORAL PROPERTIES OF FUNCTIONS FOR RUNTIME VERIFICATION

Joshua Dawes and Giles Reger

STUDY OF TRIVIAL COMPILER EQUIVALENCE ON C++ OBJECT-ORIENTED MUTATION OPERATORS

Pedro Delgado-Pérez and Sergio Segura

WED 9:00 – 10:40

Room: Atrium A

(SONAMA-1) Social Network and Media Analysis

Session Chair: TBA

A COMPUTATIONALLY EFFICIENT MULTI-MODAL CLASSIFICATION APPROACH OF DISASTER-RELATED TWITTER IMAGES

Yara Rizk, Hadi Jomaa, Mariette Awad and Carlos Castillo

BRAND COMMUNITY ANALYSIS ON SOCIAL NETWORKS USING GRAPH REPRESENTATION LEARNING

Marco Brambilla and Mattia Gasparini

COLLABORATION PROFILES AND THEIR IMPACT ON MUSICAL SUCCESS

Mariana Silva, Laís Rocha and Mirella Moro

COMMUNITY EVOLUTION PREDICTION IN DYNAMIC SOCIAL NETWORKS USING COMMUNITY FEATURES' CHANGE RATES

Narimene Dakiche, Fatima Benbouzid-Si Tayeb, Yahya Slimani and Karima Benatchba

WED 10:40 – 11:10

Coffee Break

WED 11:10 – 12:50
Room: Megaron Alpha

(IoT-2) Internet of Things

Session Chair: TBA

PRIVACY-PRESERVING DELEGABLE AUTHENTICATION IN THE INTERNET OF THINGS

Clémentine Gritti, Melek Önen and Refik Molva

SEPARATE SESSION KEY GENERATION APPROACH FOR NETWORK AND APPLICATION FLOWS IN LORAWAN

Suman Bala, Dominique Barthel and Said Gharout

TOWARD A LIGHTWEIGHT ONTOLOGY FOR PRIVACY PROTECTION IN IOT

Mayke Arruda and Renato Freitas Bulcão-Neto

WED 11:10 – 12:50

Room: Megaron Beta

(DADS-2) Dependable, Adaptive, and Secure Distributed Systems

Session Chair: Karl M. Goeschka, UAS Technikum Vienna, Austria

FAILURE PREDICTION IN THE INTERNET OF THINGS DUE TO MEMORY EXHAUSTION

Rafiuzzaman Mohammad, Julien Gascon-Samson, Karthik Pattabiraman and Sathish Gopalakrishnan

PLANNING WORKFLOW EXECUTIONS WHEN USING SPOT INSTANCES IN THE CLOUD

Richard Gil Martinez, Antonia Lopes and Luís Rodrigues

QUANTITATIVE COMPARISON OF UNSUPERVISED ANOMALY DETECTION ALGORITHMS FOR INTRUSION DETECTION

Filipe Falcao, Tommaso Zoppi, Caio Barbosa, Anderson Santos, Balduino Fonseca, Andrea Ceccarelli and Andrea Bondavalli

A LIBRARY FOR SERVICES TRANSPARENT REPLICATION

Paola Pereira, Cristina Meinhardt, Fernando Dotti and Odorico Mendizabal

WED 11:10 – 12:50
Room: Megaron Gamma

(KLP-2) Knowledge and Language Processing

Session Chair: Mauro Dragoni, FBK, Italy

OUT-OF-CONTEXT FINE-GRAINED MULTI-WORD ENTITY CLASSIFICATION

Guillaume Jacquet, Jakub Piskorski and Sophie Chesney

POPULATING THE KNOWLEDGE BASE OF A CONVERSATIONAL AGENT: HUMAN VS. MACHINE

Hugo Patinho Rodrigues, Luisa Coheur and Eric Nyberg

SAME BUT DIFFERENT: DISTANT SUPERVISION FOR PREDICTING AND UNDERSTANDING ENTITY LINKING DIFFICULTY

Renato Stoffslette Joao, Pavlos Falafios and Stefan Dietze

STUDY OF LINGUISTIC FEATURES INCORPORATED IN A LITERARY BOOK RECOMMENDER SYSTEM

Haifa Alharthi and Diana Inkpen

WED 11:10 – 12:50
Room: Atrium B

(SVT-2) Software Verification and Testing

Session Chair: Leonardo Mariani, University of Milano

STATICALLY ANALYZING INFORMATION FLOWS - AN ABSTRACT INTERPRETATION-BASED HYPERANALYSIS FOR NON-INTERFERENCE

Michele Pasqua and Isabella Mastroeni

BOUNDED INVARIANCE CHECKING OF SIMULINK MODELS

Predrag Filipovikj, Guillermo Rodriguez-Navas and Cristina Seceleanu

MATCHING IMPLEMENTATIONS TO SPECIFICATIONS: THE CORNER CASES OF IOCO

Ramon Janssen and Jan Tretmans

LOGIC AGAINST GHOSTS: COMPARISON OF TWO PROOF APPROACHES FOR A LIST MODULE

Allan Blanchard, Nikolai Kosmatov and Frederic Loulergue

WED 11:10 – 12:50
Room: Atrium A

(SONAMA-2) Social Network and Media Analysis

Session Chair: TBA

EVENT DETECTION FOR EXPLORING EMOTIONAL UPHEAVALS OF DEPRESSIVE PEOPLE

PinHua Wu, JiaLing Koh and Arbee L.P. Chen

IDENTIFICATION OF CREDULOUS USERS ON TWITTER

Alessandro Balestrucci, Rocco De Nicola, Omar Inverso and Catia Trubiani

KIDSGUARD: FINE GRAINED APPROACH FOR CHILD UNSAFE VIDEO REPRESENTATION AND DETECTION

Shubham Singh, Rishabh Kaushal, Arun Balaji Buduru and Ponnuram Kumaraguru

MULTIDIMENSIONAL ANALYSIS OF HOT EVENTS FROM SOCIAL MEDIA SOURCES

Abir Troudi, Salma Jamoussi, Corinne Amel Zayani and Ikram Amous

WED 10:40 – 12:50
Poster Session I

(PANORAMA)

Posters of the following Tracks: *IRMAS, KomIS, MCA, NET, WCN, WT, BPMEA, RE, SE, UE, VSPLE, CPS, EMBS, OS, PDP, PL, RS, SP*

(See page 26 for detailed list of Posters)

WED 12:50 – 14:20
Lunch Break
(Conference venue)

WED 14:20 – 16:00
Room: Megaron Alpha

(CPS) Cyber Physical Systems

Session Chair: Jason Xue, City University of Hong Kong, Hong Kong

ADAPTC: PROGRAMMING ADAPTATION POLICIES FOR WSN APPLICATIONS

Shashank Gaur, Luis Almeida and Eduardo Tovar

ENERGY OPTIMIZATION OF BRANCH-AWARE DATA VARIABLE ALLOCATION ON HYBRID SRAM+NVM SPM FOR CPS

Yixin Li, Jinyu Zhan, Wei Jiang and Jiayu Yu

OPTIMIZING FRAGMENTATION AND SEGMENT CLEANING FOR CPS BASED STORAGE DEVICES

Qi Li, Aosong Deng, Congming Gao, Yu Liang, Liang Shi and Edwin Sha

UNITED SSD BLOCK CLEANING VIA CONSTRAINED VICTIM BLOCK SELECTION

Yajuan Du, Wei Liu, Yu Zhu, Shengwu Xiong and Meng Zhang

WED 14:20 – 16:00
Room: Megaron Beta

(NET) Networking

Session Chair: Ivan Ganchev, University of Limerick, Ireland / University of Plovdiv "Paisii Hilendarski", Bulgaria

DISASTER-RESILIENCE OF COMMUNICATION NETWORKS – EU COST CA15127-RECODIS ACTION

Ivan Ganchev

A HIERARCHICAL ARCHITECTURAL MODEL FOR NETWORK SECURITY EXPLORING SITUATIONAL AWARENESS

Ricardo Almeida, Victor Covalski, Roger Machado, Diógenes Yuri da Rosa, Adenauer Yamin, Lucas Donato and Ana Pernas

ON SIMPLIFYING CONGESTION WINDOW HANDLING FOR CMT-SCTP

Marcelo Ricardo Leitner and Mauro S. P. Fonseca

ON THE ANALOGY BETWEEN QUANTUM CIRCUIT DESIGN AUTOMATION AND VIRTUAL NETWORK EMBEDDING

Andreas Fischer and Alexandru Paler

REDUCING ENERGY CONSUMPTION IN SDN-BASED DATA CENTER NETWORKS THROUGH FLOW CONSOLIDATION STRATEGIES

Marcelo da Silva Conterato, Tiago Coelho Ferreto, Fábio Diniz Rossi, Wagner dos Santos Marques and Paulo Silas Severo de Souza

WED 14:20 – 16:00
Room: Megaron Gamma

(KLP-3) Knowledge and Language Processing

Session Chair: Mauro Dragoni, FBK, Italy

UNVEILING MIDDLE-LEVEL CONCEPTS THROUGH FREQUENCY TRAJECTORIES AND PEAKS ANALYSIS

Luigi Di Caro and Alice Ruggeri

VOCABULARY-BASED COMMUNITY DETECTION AND CHARACTERIZATION

Giorgia Ramponi, Stefano Ceri, Marco Brambilla, Florian Daniel and Marco Di Giovanni

WED 14:20 – 16:00
Room: Atrium B

(SE-1) Software Engineering

Session Chair: Byungjeong Lee, University of Seoul, South Korea

A NOVEL APPROACH TO AUTOMATIC QUERY REFORMULATION FOR IR-BASED BUG LOCALIZATION

Misoo Kim and Eunseok Lee

USABILITY EVALUATION OF VR PRODUCTS IN INDUSTRY - A SYSTEMATIC LITERATURE REVIEW

Sai Anirudh Karre, Neeraj Mathur and Raghu Reddy

RUNTIME OBSERVABLE AND ADAPTABLE UML STATE MACHINES:

MODELS@RUN.TIME APPROACH

Miren Illarramendi, Leire Etxeberria, Xabier Elkorobarrutia and Goiuria Sagardui

NODEMOP: RUNTIME VERIFICATION FOR NODE.JS APPLICATIONS

Filippo Schiavio, Haiyang Sun, Daniele Bonetta, Andrea Rosà and Walter Binder

WED 14:20 – 16:00

Room: Atrium A

(GIA) GeoInformation Analytics

Session Chair: Cyril de Runz, University of Reims, France

**FROM SPATIO-TEMPORAL DATA TO
CHRONOLOGICAL NETWORKS: AN
APPLICATION TO WILDFIRE ANALYSIS**

Didier Vega Oliveros, Moshé Cotacallapa, Leonardo N. Ferreira, Marcos Quiles, Zhao Liang, Elbert E. N. Macau and Manoel F. Cardoso

**ALGORITHMS FOR MOUNTAIN PEAKS
DISCOVERY: A COMPARISON**

Rocio Nahime Torres, Federico Milani and Piero Fraternali

**A GRAPH BASED APPROACH FOR
FUNCTIONAL URBAN AREAS DELINEATION**

Noudéhouénou Houssou, Jean-Loup Guillaume and Armelle Prigent

**A TRANSFER LEARNING PARADIGM FOR
SPATIAL NETWORKS**

Chidubem Iddianozie and Gavin McArdle

WED 16:00 – 16:30

Coffee Break

WED 16:00 – 18:10

Poster Session II

(PANORAMA)

Posters of the following Tracks: **KLP, KRR, MLA, CC, CCNIV, DADS, DAPP, MIDOS, DBDM, DM, DS, GIA, HI, SONAMA, SWA, WICE, IoT, SiSoS**

(See page 28 for detailed list of Posters)

WED 16:30 – 18:35

Room: Megaron Alpha

(EMBS) Embedded Systems

Session Chair: TBA

**A NEW SEQUENTIAL-WRITE-CONSTRAINED
CACHE MANAGEMENT TO MITIGATE WRITE
AMPLIFICATION FOR SMR DRIVES**

Shuo-Han Chen, Yong-Ching Lin, Yuan-Hao Chang, Ming-Chang Yang, Tseng-Yi Chen, Hsin-Wen Wei and Wei-Kuan Shih

A TIME-PREDICTABLE BRANCH PREDICTOR

Martin Schoeberl, Benjamin Rouxel and Isabelle Puaut

**ENERGY-DEMAND ESTIMATION OF
EMBEDDED DEVICES USING DEEP
ARTIFICIAL NEURAL NETWORKS**

Timo Hönig, Benedict Herzog and Wolfgang Schröder-Preikschat

**ON ASSESSING THE VIABILITY OF
PROBABILISTIC SCHEDULING WITH
DEPENDENT TASKS**

Jaume Abella, Enrico Mezzetti and Francisco Cazorla

**REFRESH OPTIMISED EMBEDDED-DRAM
CACHES BASED ON ZERO DATA DETECTION**

Sheel Sindhu Manohar and Hemangee Kapoor

WED 16:30 – 18:35

Room: Megaron Beta

**(MCA) Mobile Computing and
Applications**

Session Chair (TBA): Hong Va Leong, The Hong Kong

**A SCALABLE AND ACCURATE FEATURE
REPRESENTATION METHOD FOR
IDENTIFYING MALICIOUS MOBILE
APPLICATIONS**

Bo Sun, Ban Tao, Shun-Chieh Chang, Yeali S. Sun, Takeshi Takahashi and Daisuke Inoue

**MACHINE LEARNING FOR IMPROVING
MOBILE USER SATISFACTION**

Ismat Yahia CHAIB DRAA, Smail Niar, Fabien Bouquillon and Emmanuelle Grislin

**MOCA: A NOVEL PRIVACY-PRESERVING
CONTEXTUAL ADVERTISING PLATFORM ON
MOBILE DEVICES**

Jung-Hyun Lee, Woo-Jong Ryu, Kang-Min Kim and SangKeun Lee

**A MULTI-OBJECTIVE INDOOR
LOCALIZATION SERVICE FOR
SMARTPHONES**

Andreas Konstantinidis, Aphrodite Demetriades and Savvas Pericleous

**ACOUESS: SMARTPHONE-BASED LOGGER
TO ASSESS ACOUSTICAL CONDITIONS -
SUBJECTIVE NOISE CONDITIONS ON SOME
CIRCUMFERENCE AND INTRAINDIVIDUAL
VARIATION-**

Takahiro Miura, Mari Ueda, Masaaki Hiroe and Ken-ichiro Yabu

**WED 16:30 – 18:35
Room: Megaron Gamma**

**(KomIS) Knowledge Discovery meets
Information Systems**

Session Chair: Fabio Mercorio, University of Milano-Bicocca, Milan, Italy

**AN EFFECTIVE AND EFFICIENT ALGORITHM
FOR RANKING WEB DOCUMENTS VIA
GENETIC PROGRAMMING**

Ricardo Baeza-Yates and Alfredo Cuzzocrea

**HOW TO IMPLEMENT A BIG DATA
CLUSTERING ALGORITHM: A REPORT ON
LESSON LEARNED**

Michele Ianni, Elio Masciari, Giuseppe Massimo Mazzeo and Carlo Zaniolo

**ON-LINE AGGREGATION OF POIS FROM
GOOGLE AND FACEBOOK**

Maurizio Toccu, Giuseppe Psaila and Davide Altomare

**TOPIC-BASED INDEXING OF FEDERATED
DATASETS**

Ciro Sorrentino, Ester Giallonardo and Eugenio Zimeo

**VISCRIMEPREDICT: A SYSTEM FOR CRIME
TRAJECTORY PREDICTION AND
VISUALISATION FROM HETEROGENEOUS
DATA SOURCES**

Ahsan Morshed, Abdur Rahim Mohammad Forkan, Pei-Wei Tsai, Prem Prakash Jayaraman, Timos Sellis, Dimitrios Georgakopoulos, Irene Moser and Rajiv Ranjan

**WED 16:30 – 18:35
Room: Atrium B**

(SE-2) Software Engineering

Session Chair: Byungjeong Lee, University of Seoul, South Korea

**JUNIVERSE: LARGE-SCALE JUNIT-TEST
ANALYSIS IN THE WILD**

Omar Javed, Alex Villazon and Walter Binder

**AUTOMATED CLASSIFICATION OF
SOFTWARE CHANGE MESSAGES USING
MULTI-LABEL ACTIVE LEARNING**

Cyrine Gharbi, Mohamed Wiem Mkaouer, Ilyes Jenhani and Montassar Ben Messaoud

**PARALLEL PROPERTY CHECKING WITH
STAGED SYMBOLIC EXECUTION**

Junye Wen and Guowei Yang

**A MODEL-DRIVEN APPROACH FOR
BEHAVIOR-DRIVEN GUI TESTING**

Hendrik Bänder and Herbert Kuchen

**WED 16:30 – 18:35
Room: Atrium A**

**(IAR) Information Access and
Retrieval**

Session Chair: Marco Viviani, University degli Studi di

**HYBRID MOLECULE-BASED INFORMATION
RETRIEVAL**

Nathalie CHARBEL, Christian Sallaberry, Sebastien Laborie and Richard Chbeir

**ASK TOSCANINI!—ARCHITECTING A
SEARCH ENGINE FOR MUSIC SCORES
BEYOND METADATA**

Arman Bahraini and Eli Tilevich

**AMV-LSTM: AN ATTENTION-BASED MODEL
WITH MULTIPLE POSITIONAL TEXT
MATCHING**

Thiziri Belkacem, Taoufiq Dkaki, Jose G. Moreno and Mohand Boughanem

**THE IMPORTANCE OF BEING DISSIMILAR IN
RECOMMENDATION**

Vito Walter Anelli, Tommaso Di Noia, Eugenio Di Sciascio, Azzurra Ragone and Joseph Trotta

Thursday April 11, 2019

**Thu 9:25–10:40
Room: Panorama**

Keynote Address

Dr. Yiorgos L. Chrysanthou
See page 6 for details.

Thu 10:40 – 11:10
Coffee Break

THU 11:10 – 12:50
Room: Megaron Alpha
(OS-1) Operating Systems
Session Chair: Hoon Ko, IT Research Institute of Chosun University, South Korea

A ROBUST AND SECURE BACKUP SYSTEM FOR PROTECTING MALWARE
Myungjoon Shon, Heejin Kim and Jiman Hong

MY CLOUDY TIME MACHINE: A SCALABLE MICROSERVICE-BASED PLATFORM FOR DATA PROCESSING IN CLOUD-EDGE SYSTEMS
Darius-Florentin Neatu, Radu-Dumitru Stochitoiu, Andrei-Vlad Postoaca, Ion-Dorinel Filip and Florin Pop

MULTITHREADED DOUBLE QUEUING FOR BALANCED CPU-GPU MEMORY COPYING
Sanghun Cho, Jaewan Hong and Hwansoo Han

CACHE-AWARE BLOCK ALLOCATION FOR MEMORY-TECHNOLOGY STORAGE TARGETED FILE SYSTEMS
Jaeheong Ahn, Choulseung Hyun, Donghee Lee and Sam H. Noh

THU 11:10 – 12:50
Room: Megaron Beta
(WCN-1) Wireless Communications and Networking
Session Chair: Donghyun Kim, Kyungpook University, South Korea

ENERGY-AWARE MEDIUM ACCESS CONTROL FOR ENERGY-HARVESTING MACHINE-TO-MACHINE NETWORKS
Dohyung Kim and YoungBae Ko

AN ADAPTIVE ENERGY EFFICIENT SCHEME FOR ENERGY CONSTRAINED WIRELESS SENSOR NETWORKS

Bilal Jan, Haleem Farman, Murad Khan and Syed Hassan Ahmed

SOFTH: SOFT HANDOVER MULTICRITERIA MECHANISM
Guilherme Oliveira, Carlos Storck and Fátima Duarte-Figueiredo

RELIABILITY OF ADS-B COMMUNICATIONS: NOVEL INSIGHTS BASED ON AN EXPERIMENTAL ASSESSMENT
Saeif Alhazbi, Savio Sciancalepore and Roberto Di Pietro

THU 11:10 – 12:50
Room: Megaron Gamma
(MLA-1) Machine Learning and its Applications
Session Chair: TBA

AN ADAPTIVE FRAMEWORK FOR APPLYING MACHINE LEARNING IN SMART SPACES
Sachin Bhardwaj, Keon Myung Lee and Jee-Hyong Lee

CAUSALITY RELATIONSHIP AMONG ATTRIBUTES APPLIED IN AN EDUCATIONAL DATA SET
Walisson Carvalho and Luis Zarate

EVOLVING MIMO MULTI-LAYERED ARTIFICIAL NEURAL NETWORKS USING GRAMMATICAL EVOLUTION
Qadeer Ahmad, Atif Rafiq, Muhammad Adil Raja and Noman Javed

EXACT GAUSSIAN PROCESS REGRESSION WITH DISTRIBUTED COMPUTATIONS
Duc-Trung Nguyen, Maurizio Filippone and Pietro Michiardi

THU 11:10 – 12:50
Room: Atrium B
(SE-3) Software Engineering
Session Chair: Enjee Song, Baylor University, USA

TOWARD A DECLARATIVE LANGUAGE TO GENERATE EXPLORABLE SETS OF MODELS
Théo Le Calvar, Fabien Chhel, Frédéric Jouault and Frédéric Saubion

SYSTEMATIC TOP-DOWN DESIGN OF CYBER-PHYSICAL MODELS WITH INTEGRATED VALIDATION AND FORMAL VERIFICATION
Christoph Luckeneder and Hermann Kaindl

LIVE AND GLOBAL CONSISTENCY CHECKING IN A COLLABORATIVE ENGINEERING ENVIRONMENT
Michael Troels, Atif Mashkoor and Alexander Egyed

REVISITING CONTINUOUS DEPLOYMENT MATURITY: A TWO-YEAR PERSPECTIVE
Simo Mäkinen, Timo Lehtonen, Terhi Kilamo, Mikko Puonti, Tommi Mikkonen and Tomi Männistö

THU 11:10 – 12:50
Room: Atrium A

(SWA-1) Semantic Web and Applications

EMBEDDING CARDINALITY CONSTRAINTS IN NEURAL LINK PREDICTORS
Emir Munoz, Pasquale Minervini and Matthias Nickles

EXPLOITING CONTEXT AND QUALITY FOR LINKED DATA SOURCE SELECTION
Barbara Catania, Giovanna Guerrini and Beyza Yaman

GEOSENSOR: SEMANTIFYING CHANGE AND EVENT DETECTION OVER BIG DATA
Nikiforos Pittaras, George Papadakis, George Stamoulis, George Giannakopoulos and Manolis Koubarakis

HOW MANY AND WHAT TYPES OF SPARQL QUERIES CAN BE ANSWERED THROUGH ZERO-KNOWLEDGE LINK TRAVERSAL?
Pavlos Fafalios and Yannis Tzitzikas

Thu 12:50 – 14:20
Lunch Break
(Conference venue)

THU 14:30 – 16:30
SRC Oral Presentation

PANOROMA

See page 28 for details.

THU 14:20 – 16:00
Room: Megaron Alpha

(OS-2) Operating Systems
Session Chair: TBA

(WT-1) Web Technologies
Session Chair: Tim A. Majchzak, University of Agder-Kristiansand, Norway

A SOLUTION FOR A DETAILED MATHEMATICAL MODEL FOR THE AIRCRAFT LANDING PROBLEM ON A SINGLE AND MULTIPLE RUNWAY SYSTEM
Meriem Ben Messaoud and Khaled Ghedira

HPANAL: A FRAMEWORK FOR ANALYZING TRADEOFFS OF HUGE PAGES
Gunhee Choi, Juhyung Son, Jongmoo Choi, Seong-je Cho and Youjip Won

BINARY TRANSFORMATION OF APPLICATIONS TO RUN ON BARE PCS
Rasha Almajed, Ramesh Karne and Alexander Wijesinha

A LITERATURE REVIEW OF STUDIES ON INTERACTIVE 3D INFORMATION VISUALIZATION FOR THE WEB
Luiz Soares dos Santos Baglie, Diego Dias, Marcelo Guimarães and José Brega

THU 14:20 – 16:00
Room: Megaron Beta

(WCN-1) Wireless Communications and Networking
Session Chair: Donghyun Kim, Kyungpook University, South Korea

(NGPS) Next Generation Programming Paradigms and Systems
Session Chair: Frederic Loulergue, Northern Arizona

A NEW COAP CONGESTION CONTROL SCHEME USING MESSAGE LOSS FEEDBACK FOR IOUT

Minseok KIM, Sungwon Lee, Muhammad Toaha Khan, Junho Seo, Yeongjoon Bae, Yonghwan Jeong and Dongkyun Kim

ON THE FEASIBILITY OF USING IEEE 802.11AD MMWAVE FOR ACCURATE OBJECT DETECTION

Hossein Ajorloo, Cormac J. Sreenan, Adrian Loch Navarro and Joerg Widmer

A MATCHING BASED COEXISTENCE MECHANISM BETWEEN EMBB AND URLLC IN 5G WIRELESS NETWORKS

Anupam Kumar Bairagi, Md. Shirajum Munir, Madyan Alsenwi, Nguyen H. Tran and Choong Seon Hong

SAFE USAGE OF REGISTERS IN BSPLIB

Arvid Jakobsson, Frédéric Dabrowski and Wadoud Bousdira

**THU 14:20 – 16:00
Room: Megaron Gamma**

(MLA-2) Machine Learning and its Applications
Session Chair: TBA

GAN IS A FRIEND OR FOE? A FRAMEWORK TO DETECT VARIOUS FAKE FACE IMAGES

Simon Woo, Shahroz Tariq, Sangyup Lee, Hoyoung Kim and Youjin Shin

HOW DO IMPLEMENTATION BUGS AFFECT THE RESULTS OF MACHINE LEARNING ALGORITHMS?

Maurizio Leotta, Dario Olinas, Filippo Ricca and Nicoletta Noceti

INFLUENCE MAXIMIZATION FOR EFFECTIVE ADVERTISEMENT IN SOCIAL NETWORKS: PROBLEM, SOLUTION, AND EVALUATION

Suk-Jin Hong, Yun-Yong Ko, Moon-Jeung Joe and Sang-Wook Kim

MARLON - A DOMAIN-SPECIFIC LANGUAGE FOR MULTI-AGENT REINFORCEMENT LEARNING ON NETWORKS

Tim Molderez, Bjarno Oeyen, Coen De Roover and Wolfgang De Meuter

**THU 14:20 – 16:00
Room: Atrium B**

(SE-4) Software Engineering

Session Chair: Enjee Song, Baylor University, USA

(RE-1) Requirement Engineering

Session Chair: Joao Araujo, Universidade NOVA de Lisboa, Portugal

MARVALOUS: MACHINE LEARNING BASED DETECTION OF EMOTIONS IN THE VALENCE-AROUSAL SPACE IN SOFTWARE ENGINEERING TEXT

Md Rakibul Islam, Md Kauser Ahmmed and Minhaz F. Zibran

USING DESIGN SPRINT AS A FACILITATOR IN ACTIVE LEARNING FOR STUDENTS IN THE REQUIREMENTS ENGINEERING COURSE: AN EXPERIENCE REPORT

Edna Dias Canedo and Vinicius Gomes Ferreira

REQUIREMENTS FOR PREVENTING LOGIC FLAWS IN THE AUTHENTICATION PROCEDURE OF WEB APPLICATIONS

Youssou Ndiaye, Oliver Barais, Arnaud Blouin, Ahmed Bouabdallah and Nicolas Aillery

LOGIC-BASED METHODOLOGY TO HELP SECURITY ARCHITECTS IN ELICITING HIGH-LEVEL NETWORK SECURITY REQUIREMENTS

Romain Laborde, Sravani Teja BULUSU, Ahmad Samer Wazan, Abdelmalek Benzekri and Francois Barrere

**THU 14:20 – 16:00
Room: Atrium A**

(SWA-2) Semantic Web and Applications

Session Chair: Dima Vaman, Infai/University of Virginia

IMPROVING THE PERFORMANCE OF QUERYING MULTIDIMENSIONAL RDF DATA USING AGGREGATES

Franck RAVAT, Jiefu SONG, Olivier TESTE and Cassia Trojahn

PARTITIONING AND LOCAL MATCHING LEARNING OF LARGE BIOMEDICAL ONTOLOGIES

Amir Laadhar, Faiza Ghazzi, Imen Megdiche, Ranck Ravat and Olivier Teste

SEMI-AUTOMATIC ONTOLOGY-DRIVEN DEVELOPMENT DOCUMENTATION

Yevgen Pikus, Norbert Weissenberg, Bernhard Holtkamp and Boris Otto

USING CONTEMPORARY CONSTRAINTS TO ENSURE DATA CONSISTENCY

David Abián, Jorge Bernad and Raquel Trillo-Lado

THU 16:00 – 16:30
Coffee Break

THU 16:30 – 18:10
Room: Megaron Alpha

(WT-2) Web Technologies

Session Chair: Tim A. Majchzak, University of Agder-Kristiansand, Norway

ALDONA: A HYBRID SOLUTION FOR SENTENCE-LEVEL ASPECT-BASED SENTIMENT ANALYSIS USING A LEXICALISED DOMAIN ONTOLOGY AND A NEURAL ATTENTION MODEL

Donatas Meskele and Flavius Frasinca

MIND THE CACHE: LARGE-SCALE EXPLORATIVE STUDY OF WEB CACHING

Hoai Viet Nguyen, Luigi Lo Iacono and Hannes Federrath

STANDARDS-DRIVEN METAMODEL TO INCREASE RETRIEVABILITY OF HETEROGENEOUS SERVICES

Martin Garriga and Andrés Flores

AWAITVIZ: A VISUALIZER OF JAVASCRIPT'S ASYNC/AWAIT EXECUTION ORDER

Ena Tominaga, Yoshitaka Arahori and Katsuhiko Gondow

THU 16:30 – 18:10
Room: Megaron Beta
(CCNIV) Communication, Computing and Networking in Internet of Vehicles

USING MACHINE LEARNING FOR HANDOVER OPTIMIZATION IN VEHICULAR FOG COMPUTING

Salman Memon and Muthucumaru Maheswaran

AN APPLICATION-ORIENTED EVALUATION OF LTE-V'S MODE 4 FOR V2V COMMUNICATION

Philip Wendland, Guenter Schaefer and Reiner Thomä

SECURE OVER-THE-AIR FIRMWARE UPDATING FOR AUTOMOTIVE ELECTRONIC CONTROL UNITS

Dimitris Bakoyiannis, Othon Tomoutzoglou and George Kornaros

THU 16:30 – 18:10
Room: Megaron Gamma

(MLA-3) Machine Learning and its Applications

Session Chair: TBA

POPULATION ANOMALY DETECTION THROUGH DEEP GAUSSIANIZATION

david tolpin

REAL-TIME BOTNET DETECTION USING NONNEGATIVE TUCKER DECOMPOSITION

Hideaki Kanehara, Yuma Murakami, Jumpei Shimamura, Takeshi Takahashi, Daisuke Inoue and Noboru Murata

CONVOLUTIONAL NEURAL NETWORK WITH STRUCTURAL INPUT FOR VISUAL OBJECT TRACKING

Mustansar Fiaz, Arif Mahmood and Soon Ki Jung

THU 16:30 – 18:10
Room: Atrium B

(RE-2) Requirement Engineering

Session Chair: Joao Araujo, Universidade NOVA de Lisboa, Portugal

ARROW: AUTOMATIC RUNTIME REAPPRAISAL OF WEIGHTS FOR SELF-ADAPTATION

Luis Hernan Garcia Paucar, Nelly Bencomo and Kevin Kam Fung Yuen

**CONTEMPORARY REQUIREMENTS
CHALLENGES AND ISSUES: AN EMPIRICAL
STUDY IN 11 ORGANIZATIONS**

Feng Chen, Norah Power, J.J. Collins and Fuyuki Ishikawa

**GOAL MODELING FOR COLLABORATIVE
GROUPS OF CYBER-PHYSICAL SYSTEMS
WITH GRL**

Marian Daun, Viktoria Stenkova, Lisa Krajinski,
Jennifer Brings, Torsten Bandyszak and Thorsten
Weyer

THU 16:30 – 18:10

Room: Atrium A

**(SiSoS) Software-intensive Systems-
of-Systems**

Session Chair: Flavio Oquendo, IRISA (UMR CNRS) –
Univ. South Brittany, France

**CONSTRUCTING PRODUCT-LINE SAFETY
CASES FROM CONTRACT-BASED
SPECIFICATIONS**

Damir Nešić, Mattias Nyberg and Barbara Gallina

**TOWARDS A FRACTIONATION-BASED
VERIFICATION: APPLICATION ON SYSML
ACTIVITY DIAGRAMS**

Samir Ouchani

Friday April 12, 2019

FRI 9:00 – 10:40

Room: Megaron Alpha

(PL-1) Programming Languages

Session Chair: Barrett Bryant, University of North Texas,
USA

**AN ATTRIBUTE LANGUAGE DEFINITION FOR
ADAPTABLE PARSING EXPRESSION
GRAMMARS**

Elton M. Cardoso, Rodrigo Ribeiro, Leonardo Reis,
Mariza A. S. Bigonha, Roberto S. Bigonha and
Vladimir O. Di Iorio

**CPEG: A TYPED TREE CONSTRUCTION
FROM PARSING EXPRESSION GRAMMARS
WITH REGEX-LIKE CAPTURES**

Daisuke Yamaguchi and Kimio Kuramitsu

**MUSKET: A DOMAIN-SPECIFIC LANGUAGE
FOR HIGH-LEVEL PARALLEL
PROGRAMMING WITH ALGORITHMIC
SKELETONS**

Christoph Rieger, Fabian Wrede and Herbert Kuchen

**PUREMEM: A STRUCTURED PROGRAMMING
MODEL FOR TRANSIENTLY POWERED
COMPUTERS**

Caglar Durmaz, Kasim Sinan Yildirim and
Geylani Kardas

FRI 9:00 – 10:40

Room: Megaron Beta

**(HCI) Smart Human Computer
Interaction**

**DETECTING STRESS FROM MOUSE-GAZE
ATTRACTION**

Jun Wang, Eugene Yujun Fu, Grace Ngai, Hong Va
Leong and Michael Xuelin Huang

**EFFECTS OF VIRTUAL-AVATAR MOTION-
SYNCHRONY LEVELS ON FULL-BODY
INTERACTION**

Changyeol Choi, Joohee Jun, Jiwoong Heo and
Kwanguk Kim

**SMART CONTRACT'S INTERFACE FOR USER
CENTRIC BUSINESS MODEL IN BLOCKCHAIN**

Malik Junaaid Jami Gul and Anand Paul

**STYLUS KNIFE: IMPROVING CUTTING SKILL
IN PAPER-CUTTING BY IMPLEMENTING
PRESSURE CONTROL**

Takafumi Higashi and Hideaki Kanai

FRI 9:00 – 10:40

Room: Megaron Gamma

**(SFECS) Sustainability of Fog/Edge
Computing Systems**

Session Chair: Christian Esposito, University of Napoli
"Federico II", Italy

**EVALUATION OF ACE PROPERTIES OF
TRADITIONAL SQL AND NOSQL BIG DATA
SYSTEMS**

Muhammad Younas, Maria Teresa Gonzalez-Aparicio,
Javier Tuya and Ruben Casado

**FOG COMPUTING AS THE KEY FOR
SEAMLESS CONNECTIVITY HANDOVER IN
FUTURE VEHICULAR NETWORKS**

Maria Rita Palattella, Ridha Soua, Abdelmajid Khelil
and Thomas Engel

**RESOURCE-SHARING OPTIMIZATION FOR
MULTICAST D2D COMMUNICATIONS
UNDERLAYING LTE-A UPLINK CELLULAR
NETWORKS**

Devarani Devi Ningombam and Seokjoo Shin

**TOWARDS A SEAMLESS COORDINATION OF
CLOUD AND FOG: ILLUSTRATION THROUGH
THE INTERNET-OF-THINGS**

Zakaria Maamar

**WORD2VEC BASED SPELLING CORRECTION
METHOD OF TWITTER MESSAGE**

Jeongin Kim, Taekeun Hong and Pankoo Kim

FRI 9:00 – 10:40

Room: Atrium B

(BIO) Bioinformatics

Session Chair: TBA

**AN INSIGHT INTO BIOLOGICAL DATA
MINING BASED ON RARITY AND
CORRELATION AS CONSTRAINTS**

Souad Bouasker

**DRUG TARGET DISCOVERY USING
KNOWLEDGE GRAPH EMBEDDINGS**

Sameh K. Mohamed, Aayah Nounu and Vit Novacek

**ENSEMBLE FEATURE SELECTION FOR
BIOMARKER DISCOVERY IN MASS
SPECTROMETRY-BASED METABOLOMICS**

Aliasghar Shahrjooihaghighi, Hichem Frigui, Xiang
Zhang, Xiaoli Wei, Biyun Shi and Craig J. McClain

**MOLECULE SPECIFIC NORMALIZATION FOR
PROTEIN AND METABOLITE BIOMARKER
DISCOVERY**

Ameni Trabelsi, Biyun Shi, Xiaoli Wei, HICHEM
FRIGUI, Xiang Zhang, Aliasghar Shahrjooihaghighi
and Craig McClain

FRI 9:00 – 10:40

Room: Atrium A

(DS) Data Streams

Session Chair: Jean Paul Barddal, Pontificia Universidade
Catolica do Parana, Brazil

**EXPLOITING ENTITY INFORMATION FOR
STREAM CLASSIFICATION OVER A STREAM
OF REVIEWS**

Christian Beyer, Vishnu Unnikrishnan, Uli Niemann,
Pawel Matuszyk, Eirini Ntoutsou and Myra Spiliopoulou

**QUOTIENT HASH FILTERS - EFFICIENTLY
FINDING DUPLICATES IN STREAMING DATA**

Rémi Géraud, Marius Lombard-Platet and David
Naccache

**DATASEG: DYNAMIC STREAMING SENSOR
DATA SEGMENTATION FOR ACTIVITY
RECOGNITION**

Hela Sfar and Amel Bouzeghoub

**LEARNING REGULARIZED Hoeffding
TREES FROM DATA STREAMS**

Jean Paul Barddal and Fabrício Enembreck

FRI 10:40 – 11:10

Coffee Break

FRI 11:10 – 12:50

Room: Megaron Alpha

(PL-1) Programming Languages

Session Chair: Barrett Bryant, University of North Texas,
USA

(CC-1) Cloud Computing

Session Chair: TBA

**RETRIEVAL OF INDIVIDUAL SOLUTIONS
FROM ENCAPSULATED SEARCH WITH A
POTENTIALLY INFINITE SEARCH SPACE**

Jan C. Dageförde and Herbert Kuchen

**II: TOWARDS A SIMPLE FORMAL SEMANTIC
FRAMEWORK FOR COMPILER
CONSTRUCTION**

Christiano Braga

**A PROGRAMMING MODEL AND
MIDDLEWARE FOR HIGH THROUGHPUT
SERVERLESS COMPUTING APPLICATIONS**

Alfonso Perez, Germán Moltó, Miguel Caballer and
Amanda Calatrava

**FRI 11:10 – 12:50
Room: Megaron Beta**

**(WICE) Web-based Technologies for
Interactive Computing Education**
Session Chair: Hasan Jamil, University of Idaho, USA

**MEET CYRUS - THE QUERY BY VOICE
MOBILE ASSISTANT FOR THE TUTORING
AND FORMATIVE ASSESSMENT OF SQL
LEARNERS**

Josue Godinez and Hasan Jamil

**INTEGRATING CONTEXT-AWARENESS AND
MULTI-CRITERIA DECISION MAKING IN
EDUCATIONAL LEARNING**

Yong Zheng, Shephalika Shekhar, Alisha Anna Jose
and Sunil Kumar Rai

**A WEB-BASED E-ASSESSMENT TOOL FOR
DESIGN PATTERNS IN UML CLASS
DIAGRAMS**

Tobias Reischmann and Herbert Kuchen

**ANCHORING INTERACTIVE POINTS OF
INTEREST ON WEB-BASED INSTRUCTIONAL
VIDEO: EFFECTS ON STUDENTS'
INTERACTION BEHAVIOR AND PERCEIVED
EXPERIENCE**

maria pimentel, Cristiane Yaguinuma, Diogo Santana
Martins and Izabela Zaine

**FRI 11:10 – 12:50
Room: Megaron Gamma**

**(MiDOS) Microservices, DevOps, and
Service-oriented Architecture**

Session Chair: Jacopo Mauro, University of Southern
Denmark, Denmark

**AN EXTENSIBLE DATA-DRIVEN APPROACH
FOR EVALUATING THE QUALITY OF
MICROSERVICE ARCHITECTURES**

Mario Cardarelli, Ludovico Iovino, Paolo Di Francesco,
Amleto Di Salle, Ivano Malavolta and Patricia Lago

**ATTACK GRAPH GENERATION FOR
MICROSERVICE ARCHITECTURE**

Amjad Ibrahim, Stevica Bozhinoski and Alexander
Pretschner

**REACTIVE MICROSERVICES FOR THE
INTERNET OF THINGS: A CASE STUDY IN
FOG COMPUTING**

Cleber Jorge Lira de Santana, Brenno Alencar and
Cassio Prazeres

**TRANSPARENT TRACING OF
MICROSERVICE-BASED APPLICATIONS**

Matheus Santana, Nelson Rosa, Adalberto Sampaio Jr
and Marcos Andrade

**FRI 11:10 – 12:50
Room: Atrium B**

**(VSPLE) Variability and Software
Product Line Engineering**

Session Chair: Abdelhak-Djamel SERIAI, University of
Montpellier, France

**A GENERIC TRACEABILITY METAMODEL
FOR ENABLING UNIFIED END-TO-END
TRACEABILITY IN SOFTWARE PRODUCT
LINES**

Philipp Heisig, Jan-Philipp Steghöfer, Christopher
Brink and Sabine Sachweh

**EVALUATING VARIABILITY AT THE
SOFTWARE ARCHITECTURE LEVEL: AN
OVERVIEW**

Ana Paula Allian, Bruno Sena and Elisa Yumi
Nakagawa

**TEST CASE SELECTION USING STRUCTURAL
COVERAGE IN SOFTWARE PRODUCT LINES
FOR TIME-BUDGET CONSTRAINED
SCENARIOS**

Urtzi Markiegi, Aitor Arrieta, Leire Etxeberria and
Goiuria Sagardui

**FRI 11:10 – 12:50
Room: Atrium A**

**(CIVIA) Computational Intelligence
and Video & Image Analysis**

Session Chair: Agostinho Rosa, University of Lisbon,
Portugal

**(COMBI) Advances in
Computational Biomedical Imaging**

Session Chair: TBA

**2D CHARACTER ANIMATING NETWORKS:
BRINGING STATIC CHARACTERS TO MOVE
VIA MOTION TRANSFER**

Zackary P. T. Sin, Peter H. F. Ng, Simon C. K. Shiu,
Fu-lai Chung and Hong-va Leong

**VISUAL CONTENT BASED VIDEO RETRIEVAL
ON NATURAL LANGUAGE QUERIES**

Ravi Bansal and Sandip Chakraborty

**AN EFFECTIVE HYBRID IMPERIALIST
COMPETITIVE ALGORITHM AND TABU
SEARCH FOR AN EXTENDED FLEXIBLE JOB
SHOP SCHEDULING PROBLEM**

Willian Tessaro Lunardi, Holger Voos and Luiz
Henrique Cherri

**BGROWTH: AN EFFICIENT APPROACH FOR
THE SEGMENTATION OF VERTEBRAL
COMPRESSION FRACTURES IN MAGNET
RESONANCE IMAGING**

Jonathan Ramos, Carolina Watanabe, Marcello
Nogueira-Barbosa and Agha Traina

FRI 12:50 – 14:20

Lunch Break
(Conference venue)

FRI 14:20 – 16:25
Room: Megaron Alpha
(CC-2) Cloud Computing
Session Chair: TBA

**MINIMIZING FINANCIAL COST OF
SCIENTIFIC WORKFLOWS UNDER DEADLINE
CONSTRAINTS IN MULTI-CLOUD
ENVIRONMENTS**

Tianyu Gao, Chase Wu, Aiqin Hou, Yongqiang Wang,
Ruxia Li and Mingrui Xu

**MODELLING MULTI LEVEL CONSISTENCY
IN ERASURE CODE BASED STORAGE
SYSTEMS**

Ojus Thomas Lee, Vijay Sharma, Madhu Kumar S D
and Priya Chandran

**OVERSUBSCRIBING MICRO-CLOUDS WITH
ENERGY-AWARE CONTAINERS
SCHEDULING**

Sérgio Mendes, José Simão and Luís Veiga

**SECURE CONTAINER ORCHESTRATION IN
THE CLOUD: POLICIES AND
IMPLEMENTATION**

Gabriel Fernandez and Andrey Brito

**THE LORD OF THE SHARES: COMBINING
ATTRIBUTE-BASED ENCRYPTION AND
SEARCHABLE ENCRYPTION FOR FLEXIBLE
DATA SHARING**

Antonis Michalas

FRI 14:20 – 16:25
Room: Megaron Beta

(HI) Health Informatics

Session Chair: Anu Mary Chacko, National Institute of
Technology, Calicut, India

**A TWO-STEP APPROACH TO PREDICTIVE
MODELING OF INDIVIDUAL-BASED
ENVIRONMENTAL HEALTH RISKS**

Wan D. Bae, Shayma Alkobaisi, Matthew Horak,
Sehjeong Kim, Sada Narayanappa, Choon-Sik Park
and Da Jeong Bae

**RESOLVING DATA INTEROPERABILITY IN
UBIQUITOUS HEALTH PROFILE USING SEMI-
STRUCTURED STORAGE AND PROCESSING**

Fahad Ahmed Satti, Ganghun Lee, Wajahat Ali Khan
and Sungyoung Lee

**LEVERAGING THE LINK QUALITY
AWARENESS FOR BODY NODE
COORDINATOR (BNC) PLACEMENT IN
WBANS**

rim negra, Imen JEMILI, Zemhari Akka, Mohamed
Mosbah, Abdelfettah Belghith and Nesrine Ouled
Abdallah

**APPLYING SITUATION-AWARENESS FOR
RECOMMENDING PHONOLOGICAL
PROCESSES IN THE CHILDREN'S SPEECH**

Maria Helena Franciscatto, Celio Trois, João Carlos
Damasceno Lima, Vinícius Maran and Marcia Keske
Soares

**GRAPH SPARSIFICATION WITH
PARALLELIZATION TO OPTIMIZE THE
IDENTIFICATION OF CAUSAL GENES AND
DYSREGULATED PATHWAYS**

Jeethu V Devasia, Priya Chandran, Anjana Soman,
Aiswarya Elezabeth Mathew and Jaya Jharwal

FRI 14:20 – 16:25
Room: Megaron Gamma

**(SATTA) Software Architecture:
Theory, Technology, and
Applications**

Session Chair: Sunwon Kang, Korea Advanced Institute

**THE EFFECT OF GAMIFICATION ON
SOFTWARE ARCHITECTURE KNOWLEDGE
MANAGEMENT: A STUDENT EXPERIMENT
AND FOCUS GROUP STUDY**

Benjamin Mayer and Rainer Weinreich

**AIDING THE REALIZATION OF SERVICE-
ORIENTED DISTRIBUTED SYSTEMS**

Marco Autili, Amleto Di Salle, Francesco Gallo,
Claudio Pompilio and Massimo Tivoli

**A RESTFUL ARCHITECTURE FOR DATA
EXPLORATION AS A SERVICE**

Yun Zhang, Xiwei Xu, Suhrid Satyal, Shiping Chen
and Liming Zhu

**AN EXPLORATORY STUDY OF MVC-BASED
ARCHITECTURAL PATTERNS IN ANDROID
APPS**

Aymen Daoudi, Ghizlane ElBoussaidi, Naouel Moha
and Sègla Kpodjedo

**JCALIPER: SEARCH-BASED TECHNICAL
DEBT MANAGEMENT**

Panagiotis Kouros, Theodore Chaikalis, Elvira-Maria
Arvanitou, Alexander Chatzigeorgiou, Apostolos
Ampatzoglou and Theodoros Amanatidis

FRI 14:20 – 16:25
Room: Atrium B

**(RS) Recommender Systems: Theory
and Applications**

Session Chair: Panagiotis Symeonidis, Free University of
Bozen-Bolzano, Italy

**COMMUNITY-AWARE DIVERSIFICATION OF
RECOMMENDATIONS**

Mesut Kaya and Derek Bridge

**GLOBAL VERSUS INDIVIDUAL ACCURACY IN
CONTEXTUAL MULTI-ARMED BANDIT**

Nicolas Gutowski, Tassadit Amghar, Olivier Camp and
Fabien Chhel

**MATRIX FACTORIZATION BASED
HEURISTICS FOR CONSTRAINT-BASED
RECOMMENDERS**

Seda Polat Erdeniz, Alexander Felfernig, Ralph Samer
and Muesluem Atas

**TOP-N GROUP RECOMMENDATIONS WITH
FAIRNESS**

Dimitris Sacharidis

**TOWARDS EXPLAINING
RECOMMENDATIONS THROUGH LOCAL
SURROGATE MODELS**

Caio Nóbrega and Leandro Marinho

POSTERS LISTING

WED 10:40 - 12:50

Poster Session I

(Panorama)

**(IRMAS) ROBOPLANNER : AUTONOMOUS
ROBOTIC ACTION PLANNING VIA
KNOWLEDGE GRAPH QUERIES**

Ajay Kattepur and Balamuralidhar P

**(IRMAS) SOCIAL ROBOT NAVIGATION
BASED ON HRI NON-VERBAL
COMMUNICATION: A CASE STUDY ON
AVOCADO HARVESTING**

Juan Pablo Vasconez, Leonardo Guevara and Fernando
Auat Cheein

**(KOMIS) A DEEP LEARNING BASED
COMMUNITY DETECTION APPROACH**

Giancarlo Sperli

**(KOMIS) CATFISH DENSITY ESTIMATION BY
AERIAL IMAGES ANALYSIS AND DEEP
LEARNING**

Donatello Conte, Pierre Gaucher and Carlo Sansone

**(MCA) EXTENDED SAMMON PROJECTION
AND WAVELET KERNEL EXTREME
LEARNING MACHINE FOR GAIT-BASED
LEGITIMATE USER IDENTIFICATION**

Muhammad Ahmad

**(NET) IMPLEMENTING CONTENT-BASED
PUBLISH/SUBSCRIBE WITH OPENFLOW**

Helge Parzyjegl, Christian Wernecke, Gero Mühl,
Eike Schweissguth and Dirk Timmermann

**(WCN) A NEW FUZZY/EVIDENTIAL
APPROACH TO ADDRESS THE AREA
COVERAGE PROBLEM IN MOBILE WIRELESS
SENSOR NETWORKS**

Boualem Adda, Dahmani Youcef, Ayaida Marwane
and de Runz Cyril

**(WT) CONTEXT-AWARE
RECOMMENDATIONS VIA SEQUENTIAL
PREDICTIONS**

Yong Zheng and Alisha Anna Jose

**(WT) UTILITY-BASED MULTI-CRITERIA
RECOMMENDER SYSTEMS**

Yong Zheng

**(WT) COMPUTATIONAL THINKING WITH
THE WEB CROWD USING CODEMAPPER**

Patrick Vanvorce and Hasan Jamil

**(BPMEA) CONFIGURING SQL-BASED
PROCESS MINING FOR PERFORMANCE AND
STORAGE OPTIMISATION**

Stefan Schöning, Claudio Di Ciccio and Jan Mendling

**(BPMEA) FORMAL SUPPORT OF PROCESS
CHAIN NETWORKS USING MODEL-DRIVEN
ENGINEERING AND PETRI NETS**

Elena Gómez-Martínez, Francisco Pérez-Blanco, Juan
de Lara, Juan Manuel Vara and Esperanza Marcos

**(BPMEA) ON THE ELICITATION AND
ANNOTATION OF BUSINESS ACTIVITIES
BASED ON EMAILS**

Diana Jlaillaty, Daniela Grigori and Khalid Belhajjame

**(RE) ELICITATION OF TECHNICAL
REQUIREMENTS IN LARGE RESEARCH
PROJECTS: THE CERBERO APPROACH**

Michael Masin, Francesca Palumbo, Joost Adriaanse,
Hans Myrhaug, Francesco Regazzoni, Manuel Sanchez
and Katiuscia Zedda

**(SE) CLASSIFYING SOFTWARE ISSUE
REPORTS THROUGH ASSOCIATION MINING**

Mohd Syafiq Zolkeply and Jianhua Shao

**(SE)MINING CONSTRAINTS FOR
MONITORING SYSTEMS OF SYSTEMS**

Thomas Krismayer, Rick Rabiser and Paul Grünbacher

**(SE)PRIVACY PRESERVING 2-PARTY
QUERIES ON BIPARTITE GRAPHS WITH
PRIVATE SET INTERSECTION**

Sara Ramezani, Tommi Meskanen and Valtteri
Niemi

**(SE) SYNTHESISING CALL SEQUENCES FROM
OCL OPERATIONAL CONTRACTS**

Hao Wu

**(SE) TESTLOCAL: JUST-IN-TIME
PARAMETRIZED TESTING OF LOCAL
VARIABLES**

Akbar Siami Namin and Marcel Heimlich

**(SE) TOWARDS A REQUIREMENTS
LANGUAGE FOR MODELING EMOTION IN
VIDEOGAMES**

JOAO ARAUJO, Ana Moreira and Gonçalo Miguéis

**(SE) VERICCM: IMPROVING THE SYNTAX
AND SEMANTICS OF REQUIREMENTS
MODELS**

Danielle Gaither, Kaushik Madala, Hyunsook Do and
Barrett R. Bryant

**(UE) DEVELOPING A MENTAL MODEL FOR
USE IN THE CONTEXT OF COMPUTER
SECURITY**

Isaiah Liljestrand, Marcelo Gonzales and Dongwan
Shin

**(UE) USER EXPERIENCE EVALUATION
FOCUSED ON VIEWPOINTS AND
EMBODIMENT**

Cristina A Scheibler and Maria Andreia F Rodrigues

**(VSPL) TOWARDS VARIANT MANAGEMENT
AND CHANGE IMPACT ANALYSIS IN SAFETY-
ORIENTED PROCESS-PRODUCT LINES**

Muhammad Atif Javed, Barbara Gallina and Anna
Carlsson

**(CPS) EMERGING COTS ARCHITECTURE
SUPPORT FOR REAL-TIME TSN ETHERNET**

James Coleman, Sara Almalih, Alexander Slota and
Yann-Hang Lee

**(EMBS) IMPACT OF SOURCE SCHEDULING
ON END-TO-END LATENCIES IN A QOS-
AWARE AVIONICS NETWORK**

Oana Hotescu, Katia Jaffres-Runser, Jean-Luc
Scharbarg and Christian Fraboul

(EMBS) GRAPHICAL PROGRAM TRANSFORMATIONS FOR EMBEDDED SYSTEMS

Robert Stewart, Bernard Berthomieu, Paulo Garcia, Idris Ibrahim, Greg Michaelson and Andrew Wallace

(OS) A RENDEZVOUS NODE SELECTION PROTOCOL FOR DRONE BASED DATA COLLECTION

Hong Min, Kwangsoo Jo, Jinman Jung, Bongjae Kim and Junyoung Heo

(OS) PREDICTING 24-HOURS AHEAD PHOTOVOLTAIC POWER OUTPUT USING FORECAST INFORMATION

Jaehyun Kim, Taehyoung Kim, Jieun Lee and Kyung Sun Ham

(PDP) AILOCKER: AUTHENTICATED IMAGE LOCKER FOR VIDEO

Jihye Kim, Hankyung Ko and Hyunok Oh

(PDP) A COMPARISON OF SYSTEM DESCRIPTION MODELS FOR DATA PROTECTION BY DESIGN

Laurens Sion, Pierre Dewitte, Dimitri Van Landuyt, Kim Wuyts, Ivo Emanuilov, Peggy Valcke and Wouter Joosen

(PL) APPLYING A DATA-CENTRIC FRAMEWORK FOR DEVELOPING MODEL TRANSFORMATIONS

Luiz Camargo and Marcos Del Fabro

(PL) FYR: A MEMORY-SAFE AND THREAD-SAFE SYSTEMS PROGRAMMING LANGUAGE

Torben Weis, Marian Waltereit and Maximilian Uphoff

(PL) PARALLEL PROGRAMMING WITH COQ: MAP AND REDUCE SKELETONS ON TREES

Jolan Philippe and Frederic Loulergue

(RS) CORE: A COLD-START RESISTANT AND EXTENSIBLE RECOMMENDER SYSTEM

Mostafa Bayomi, Annalina Caputo, Matthew Nicholson, Anirban Chakraborty and Séamus Lawless

(RS) PRESELECTION OF DOCUMENTS FOR PERSONALIZED RECOMMENDATIONS OF JOB POSTINGS BASED ON WORD EMBEDDINGS

Steffen Schnitzer, Dominik Reis, Wael Alkhatib, Christoph Rensing and Ralf Steinmetz

(RS) THE INFLUENCE OF TRUST CUES ON THE TRUSTWORTHINESS OF ONLINE REVIEWS FOR RECOMMENDATIONS

Catalin-Mihai Barbu, Guillermo Carbonell and Jürgen Ziegler

(SP) A DESIGN AND IMPLEMENTATION WIND FARM REAL-TIME SIMULATOR WITH VARIOUS TYPES OF WIND TURBINE CONSIDERING WAKE EFFECT

Taehyoung Kim, Jaehyun Kim, Jieun Lee and Kyung Sun Ham

(SP) A NOVEL APPROACH FOR COLLECTING AND SHARING SOFTWARE METRICS DATA

Ilya Khomyakov and Alberto Sillitti

WED 16:00 - 18:10

**Poster Session II
(Panorama)**

(KLP) A HYBRID DEEP LEARNING NETWORK FOR MODELLING OPINIONATED CONTENT

Pantelis Agathangelou and Ioannis Katakis

(KLP) A PORTABLE GRAMMAR-BASED NLG SYSTEM FOR VERBALIZATION OF STRUCTURED DATA

Simon Mille, Stamatia Dasiopoulou and Leo Wanner

(KLP) LOOKING INTO THE PAST: EVALUATING THE EFFECT OF TIME GAPS IN A PERSONALIZED SENTIMENT MODEL

Siwen Guo, Sviatlana Höhn and Christoph Schommer

(KLP) OVERWHELMED BY NEGATIVE EMOTIONS? MAYBE YOU ARE BEING CYBER-BULLIED!

Pinar Arslan, Michele Corazza, Elena Cabrio and Serena Villata

(KRR) HYBRID TEMPORAL SITUATION CALCULUS

Vitaliy Batusov, Giuseppe De Giacomo and Mikhail Soutchanski

(MLA) AN EFFICIENT DEEP LEARNING PLATFORM FOR DETECTING OBJECTS

Hansol Lee, Younggwan Kim and Jiman Hong

(MLA) MACHINE LEARNING BASED REAL-TIME VEHICLE DATA ANALYSIS FOR SAFE DRIVING MODELING

Pamul Yadav, Dhananjay Singh and Sangsu Jung

(MLA) MULTIPLE PERSPECTIVES HMM-BASED FEATURE ENGINEERING FOR CREDIT CARD FRAUD DETECTION

Yvan Lucas, Plerre-Edouard Portier, Léa Laporte, Sylvie Calabretto, Olivier Caelen, Liyun He--Guelton and Michael Granitzer

(MLA) TOWARD A CONTINUOUS AUTHENTICATION SYSTEM USING, A BIOLOGICALLY INSPIRED MACHINE LEARNING APPROACH: A CASE STUDY

Obada Zoubi and Mariette Awad

(CC) PERFORMANCE OVERHEAD OF CONTAINER ORCHESTRATION FRAMEWORKS FOR MANAGEMENT OF MULTI-TENANT DATABASE DEPLOYMENTS

Eddy Truyen, Dimitri van Landuyt, Bert Lagaisse and Wouter Joosen

(CC) DIABETES CARE IN CLOUD - RESEARCH CHALLENGES

Merlin George, Dr. Anu Mary Chacko, Dr. Sudeep Koshy Kurien and Dr. Naseer Ali

(CCNIV) EXPLOITING AUTOMATED PLANNING FOR EFFICIENT CENTRALIZED VEHICLE ROUTING AND MITIGATING CONGESTION IN URBAN ROAD NETWORKS

Lukas Chrpa, Mauro Vallati and Simon Parkinson

(DADS) DISTRIBUTED STORAGE SYSTEM BASED ON PERMISSIONED BLOCKCHAIN

Racin Nygaard, Hein Meling and Leander Jehl

(DADS) IS IT SAFE TO DOCKERIZE MY DATABASE BENCHMARK?

Martin Grambow, Jonathan Hasenburg and David Bermbach

(DAPP) PROCESS TRACEABILITY IN DISTRIBUTED MANUFACTURING USING BLOCKCHAINS

Sebastian Geiger, Daniel Schall, Sebastian Meixner and Andreas Egger

(MiDOS) A MODEL-DRIVEN WORKFLOW FOR DISTRIBUTED MICROSERVICE DEVELOPMENT

Florian Rademacher, Jonas Sorgalla, Sabine Sachweh and Albert Zündorf

(DBDM) A SCALABLE AND PERSISTENT KEY-VALUE STORE USING NON-VOLATILE MEMORY

Doyoung Kim, Won Gi Choi, Hanseung Sung and Sanghyun Park

(DBDM) THE SIMILARQL FRAMEWORK: SIMILARITY QUERIES IN PLAIN SQL

Caetano Traina Jr., Agma Traina, Robson Cordeiro, Cristina Ciferry, Guilherme Rocha and Andre Moriyama

(DM) K-MIXED PROTOTYPES: A CLUSTERING ALGORITHM FOR RELATIONAL DATA WITH MIXED ATTRIBUTE TYPES

Rahmah Brnawy and Nematollaah SHIRI

(DM) MINING PRODUCT OPINIONS WITH MOST FREQUENT CLUSTERS OF ASPECT TERMS

Chukwuma Ejie, Christie Ezeife and Ritu Chaturvedi

(DS) DECISION TREE-BASED FEATURE RANKING IN CONCEPT DRIFTING DATA STREAMS

Jean Antonio Pereira Karax, Andreia Malucelli and Jean Paul Barddal

(DS) STREAMING PIECEWISE LINEAR APPROXIMATION FOR EFFICIENT DATA MANAGEMENT IN EDGE COMPUTING

Romarc Duvignau, Vincenzo Gulisano, Marina Papatriantafilou and Vladimir Savic

(GIA) SIMILARITY-BASED VISUAL EXPLORATION OF VERY LARGE GEOREFERENCED MULTIDIMENSIONAL DATASETS

Erick Gomez Nieto and Roger Peralta

(GIA) THE ROLE OF GEOGRAPHIC KNOWLEDGE FOR SUB-CITY LEVEL GEOLOCATION

Laura Di Rocco, Michela Bertolotto, Davide Buscaldi, Barbara Catania and Giovanna Guerrini

(HI) AN ITERATIVE OVERSAMPLING APPROACH FOR ORDINAL CLASSIFICATION

Francisco Marques, Inês Domingues, Pedro Abreu, José Amorim, Hugo Duarte and João Santos

(HI) IPBN: ALERTS MANAGEMENT IN INTRAVENOUS ELECTROMEDICAL DEVICES USING BAYESIAN NETWORKS

Fabício Ferreira, Alexandre de Souza, Jorge Barbosa,
Adenauer Yamin and Luciano Agostini

**(SONAMA) A TOOL FOR SPATIO-TEMPORAL
ANALYSIS OF SOCIAL ANXIETY WITH
TWITTER DATA**

Joohong Lee, Dongyoung Sohn and Yong Suk Choi

**(SONAMA) EVALUATING NEURAL WORD
EMBEDDINGS CREATED FROM ONLINE
COURSE REVIEWS FOR SENTIMENT
ANALYSIS**

Danilo Dessi', Mauro Dragoni, Gianni Fenu, Mirko
Marras and Diego Reforgiato Recupero

**(SONAMA) KNAPSACK-BASED REVERSE
INFLUENCE MAXIMIZATION FOR TARGET
MARKETING IN SOCIAL NETWORKS**

Ashis Talukder and Choong Seon Hong

**(SONAMA) PREDICTING EVENT
ATTENDANCE EXPLORING SOCIAL
INFLUENCE**

Michael Granitzer and Fatemeh Salehi Rizi

**(SONAMA) SEMANTIC ANALYSIS FOR
PARAPHRASE IDENTIFICATION USING
SEMANTIC ROLE LABELING**

Eunji Lee, Htet Myet Lynn, Hyunjung Kim and
Pankoo Kim

**(SWA) A TOOL FOR EXPLORING NETWORKS
OF COMPUTER SCIENTISTS AS A GRAPH**

Mirko Cesarini, Fabio Mercorio, Mario Mezzanzanica,
Vincenzo Moscato and Antonio Picariello

**(SWA) THE SCIENTIFIC EVENTS ONTOLOGY
OF THE OPENRESEARCH.ORG CURATION
PLATFORM**

Said Fathalla, Sahar Vahdati, Sören Auer and
Christoph Lange

**(WICE) RESOURCES FOR HEALTHCARE
WORKFLOW MODELING AND ANALYSIS**

Hossain Shahriar, Chi Zhang and Md Arabin Islam
Talukder

**(WICE) MORE THAN THE SUM OF ITS PARTS:
COMPOSING LEARNING FORMATS FROM
CORE COMPONENTS**

Niels Heller, Sebastian Mader and François Bry

**(IoT) HYGIEIA: DATA QUALITY ASSESSMENT
FOR SMART SENSOR NETWORK**

Gabriel Rodrigues Caldas de Aquino, Claudio Miceli
de Farias and Luci Pirmez

**(IoT) PEDAL:POWER-DELAY PRODUCT
OBJECTIVE FUNCTION FOR INTERNET OF
THINGS APPLICATIONS**

Bardia Safaei, Ali Asghar Mohammad Salehi, Maryam
Shirbeigi, Amir Mahdi Hosseini Monazzah and Alireza
Ejlali

**(SiSoS) THE PRELIMINARY RESULTS OF A
MAPPING STUDY OF DEPLOYMENT AND
ORCHESTRATION FOR IOT**

Phu Nguyen, Nicolas Ferry, Gencer Erdogan, Hui Song,
Stéphane Lavirotte, Jean-Yves Tigli and Arnor Solberg

**(SiSoS) DATA-DRIVEN ENVIRONMENT
MODELING FOR ADAPTIVE SYSTEM-OF-
SYSTEMS**

Yong-Jun Shin, Young-Min Baek, Eunkyong Jee and
Doo-Hwan Bae

**Student Research
Competition Program**

**(DM) STUDENT RESEARCH ABSTRACT:
CRYPTOCURRENCY WORLD
IDENTIFICATION AND PUBLIC CONCERNS
DETECTION VIA SOCIAL MEDIA**

Shaista Bibi

**(DM) STUDENT RESEARCH ABSTRACT:
FUZZY-RULE BASED APPROACH FOR
FEATURE SELECTION IN TEXT
CLASSIFICATION**

Bushra Zaheer

**(HCI) STUDENT RESEARCH ABSTRACT:
TOWARDS TEXTUALISING ANALYTIC
PROVENANCE FOR VISUAL ANALYTICS
USING NATURAL LANGUAGE GENERATION**

Waqas Khawaja

**(HCI) STUDENT RESEARCH ABSTRACT:
HUMAN-ENABLED SUSTAINABLE
MANAGEMENT OF MOBILE CLOUD ON 5G
NETWORK**

Sadia Din

**(HI) STUDENT RESEARCH ABSTRACT:
MORTALITY PREDICTION USING MEDICAL
NOTES**

Mahnaz Koupaei

**(HI) VIDEO-BASED DECISION SUPPORT FOR
BEHAVIORAL VETERINARIANS: A CASE
STUDY OF CANINE ADHD**

Asaf Fux

**(IRMAS) STUDENT RESEARCH ABSTRACT:
TAKING STIGMERGY OUT OF THE LAB AND
INTO THE FIELD**

Siobhan Duncan

**(KRR) STUDENT RESEARCH ABSTRACT:
AUTOMATIC DERIVATION OF FORMULAS
BY GRAPH EMBEDDING AND PATTERN
MATCHING NETWORK**

MinCong Luo

**(KRR) STUDENT RESEARCH ABSTRACT:
MODELLING THE DYNAMICS OF
FORGETTING AND REMEMBERING BY A
SYSTEM OF BELIEF CHANGES**

Kai Sauerwald

**(MCA) STUDENT RESEARCH ABSTRACT:
SMART MOBILE CROWDSENSING FOR
TINNITUS RESEARCH**

Muntazir Mehdi

**(NET) STUDENT RESEARCH ABSTRACT:
EXTENDING LORA NETWORKS: DYNAMIC
ROUTING PROTOCOLS AND SUB-GHZ RADIO
TECHNOLOGY FOR VERY LONG RANGE
MESH NETWORKS**

Roger Pueyo Centelles

**(RE) STUDENT RESEARCH ABSTRACT :
SRCMIM: MANAGING REQUIREMENTS
CHANGEACTIVITIES IN GLOBAL SOFTWARE
DEVELOPMENT**

Muhammad Azeem Akbar

**(SE) STUDENT RESEARCH ABSTRACT:
EMPIRICAL STUDY ON DEVELOPER'S
PERCEPTION REGARDING REWARD
PRACTICES**

Hina Gul Afridi

**(SEC) STUDENT RESEARCH ABSTRACT:
"HARD TO UNDERSTAND, EASY TO IGNORE":**

**AN AUTOMATED APPROACH TO PREDICT
MOBILE APP PERMISSION REQUESTS**

Majid Hatamian

**(SEC) STUDENT RESEARCH ABSTRACT:
DIGITAL FORENSICS IN THE INTERNET OF
THINGS**

Monina Schwarz

**(SWA) STUDENT RESEARCH ABSTRACT:
USER'S PROFILE ONTOLOGY-BASED
SEMANTIC MODEL FOR PERSONALIZED
HOTEL ROOM RECOMMENDATION IN THE
WEB OF THINGS**

Ronald Ojino

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