**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. Papadopoulus**

**Hossain Shahriar**

**Dongwan Shin**



**Hosted by**

**University of Cyprus, Cyprus**

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

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| --- | --- | --- | --- | --- |
| **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 (*working lunch*) (13:10-14:00)**  **(Conference venue)**  **SAC Banquet**  **(18:30-23:30)** |  |

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

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| Monday April 8, 2019 |
| ***Tutorial Sessions – Please see more on Tutorials Page*** |

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| --- | --- | --- | --- | --- |
| 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)**  ***Panorama*** | 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)+DLHWB(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** | | | | |

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| 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** | | | | |

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| --- | --- | --- | --- | --- |
| 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)** | | | | |

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| 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 inter-disciplinary 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 Papadopoulus**

*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 presentantion. 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, Portugal

**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**

**Session Chair**: TBA

**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**

Khadidja 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 Santini, University of Perugia, Italy

**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

**INFERENTIAL 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**

**Session Chair:** TBA

**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 Universita di Roma, Italy

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

**Session Chair**: Giorgia Ramponi, Politecnico di Milano, Italy

**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 Deisgn in Practice**

**Session Chair**: Ronald Petrlic, Commissioner for Data Protection Baden-Wurttemberg, 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 Strüber 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, Italy

**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 Chrysanthis and Adam Lee

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

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

**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**

Evandro Kuszera, Leticia M. Peres and Marcos Didonet Del Fabro

***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, Vinícius 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 Frasincar

**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**

**Session Chair**: Nikolai Kosmatov, CEA LIST, France

**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, Baldoino 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 Stoffalette Joao, Pavlos Fafalios 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 Bicocca, Italy

**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 Ponnurangam 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, Diórgenes 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**

# (Panoroma)

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 Polytechnic University, 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

**ACOUSESS: 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 Bünder and Herbert Kuchen

# Wed 16:30 – 18:35

**Room: Atrium A**

**(IAR) Information Access and Retrieval**

**Session Chair**: Marco Viviani, University degli Studi di Milano-Bicocca/DISCo, Milano, Italy

**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**

**Session Chair**: Hyoil Han, Illinois State University, USA

**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 Progamming Paradigms and Systems**

**Session Chair**: Frederic Loulergue, Northern Arizona University, USA

**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 Olianas, 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**: Beyza Yaman, Infai/Univesity of Leipzig, Germany

**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 Ghozzi, 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 Frasincar

**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**

**Session Chair**: Imen Jemili, University of Carthage, Tunisia

**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**

**Session Chair**: TBA

**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 Junaid 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 Shahrajooihaghighi 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 Ntoutsi 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

**Π: 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 Serivce-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 Agma 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, Zemmari 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:** Sungwon Kang, Korea Advanced Institute of Science and Technology, Daejeon, South Korea

**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 Sperlì

**(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 Parzyjegla, 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 Schönig, 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 Jlailaty, 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 Ramezanian, 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

**(VSPLE) 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, PIerre-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 Ejieh, 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**

Romaric 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**

Fabrício 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, Hyoungju 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, Eunkyoung 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 Koupaee

**(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

**SAC 2020 Invitation**

Please check the registration desk for handouts and a poster or visit SAC 2020 website at

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***End of Program***