# PROGRAM GUIDE

## NBiS-2017

The 20-th International Conference on
Network-Based Information Systems

and

### Intelligent Networking
### and Collaborative Systems

## INCoS-2017

The 9-th International Conference on
Intelligent Networking and Collaborative Systems

August $24^{th}$ - August $26^{th}$, 2017

Ryerson University, Canada

Technically Co-sponsored by:

FIT Fukuoka Institute of Technology 福岡工業大学

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Leonard Barolli, Fukuoka Institute of Technology, Japan
Makoto Takizawa, Hosei University, Japan

## Message from the NBiS-2017 Steering Committee Co-Chairs

Welcome to the 20-th International Conference on Network-Based Information Systems (NBiS-2017), which will be held at Ryerson University, Canada from August 24 to August 26, 2017.

The main objective of NBiS is to bring together scientists, engineers, and researchers from both network systems and information systems with the aim of encouraging the exchange of ideas, opinions, and experiences between these two communities.

NBiS started as a workshop and was held for 12 years together with DEXA International Conference as one of the oldest among DEXA Workshops. The workshop was very successful and in 2009 edition the NBiS was held at IUPUI, Indianapolis, USA as an independent International Conference supported by many international volunteers. In following years, the NBiSs was held in Takayama, Gifu, Japan (2010), Tirana, Albania (2011) Melbourne, Australia (2012), Gwangju, Korea (2013), Salerno, Italy (2014), Taipei, Taiwan (2015) and Ostrava, Czech Republic (2016).

In this edition of NBiS, many papers were submitted from all over the world. They were carefully reviewed and only high quality papers will be presented during conference days. In conjunction with NBiS-2017 are held also 8 International Workshops where specific and hot topics are deeply discussed.

Many volunteer people have kindly helped us to prepare and organize NBiS-2017. First of all, we would like to thank General Co-Chairs, Program Co-Chairs and Workshops Co-Chairs for their great efforts to make NBiS-2017 a very successful event. We would like to thank all NBiS-2017 Organizing Committee Members, Program Committee Members and other volunteers for their great help and support. We have special thanks also to Finance Chair and Web Administrator Co-Chairs. Finlay, we thank the Local Organization Team at Ryerson University, Canada for their good arrangements.

We do hope that you will enjoy the conference and have a good time in Toronto, Canada.

### NBiS-2017 Steering Committee Co-Chairs

**Leonard Barolli**, *Fukuoka Institute of Technology (FIT), Japan*
**Makoto Takizawa**, *Hosei University, Japan*

# Welcome Message from NBiS-2017 General Co-Chairs

We would like to welcome you to the 20-th International Conference on Network-Based Information Systems (NBiS-2017), which will be held at Ryerson University, Canada from August 24 to August 26, 2017.

It is our honour to chair this prestigious conference, as one of the important conferences in the field. Extensive international participation, coupled with rigorous peer reviews, has made this an exceptional technical conference. The Technical Program and Workshops add important dimensions to this event. We hope that you will enjoy each and every component of this event and benefit from interactions with other attendees.

Since its inception, NBiS has attempted to bring together people interested in information and networking, in areas that range from the theoretical aspects to the practical design of new network systems, distributed systems, multimedia systems, Internet/web technologies, mobile computing, intelligent computing, pervasive/ubiquitous networks, dependable systems, semantic services, Grid, P2P, and scalable computing. For NBiS-2017, we have continued these efforts as novel networking concepts emerge and new applications flourish. NBiS-2017 consists of the main conference and 8 workshops. We received 193 papers, and out of them 53 were accepted (about 27% acceptance ratio), which will be presented during three days of the conference.

The organization of an international conference requires the support and help of many people. A lot of people have helped and worked hard for a successful NBiS-2017 technical program and conference proceedings. First, we would like to thank all the authors for submitting their papers. We are indebted to Track Co-Chairs, Program Committee members and reviewers who carried out the most difficult work of carefully evaluating the submitted papers.

We would like to give our special thanks to Prof. Leonard Barolli and Prof. Makoto Takizawa the chairs of the Steering Committee for giving us the opportunity to hold this conference and for their guidance on organizing the conference. We would like to thank Program Co-Chairs and Workshops Co-Chairs for their excellent work. We would like to express our great appreciation to our keynote speakers for accepting our invitation as keynote speakers of NBiS-2017.

We would like to thank the Local Arrangements Chairs and Local Organization Team at Ryerson University, Canada for making good local arrangements for the conference.

We hope that you have an enjoyable and productive time during this conference, and have a great time in Toronto, Canada.

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**NBiS-2017 General Co-Chairs**

**Isaac Woungang**, *Ryerson University, Canada*
**Tomoya Enokido**, *Rissho University, Japan*

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## Welcome Message from NBiS-2017 Program Committee Co-Chairs

Welcome to the 20-th International Conference on Network-Based Information Systems (NBiS-2017), which will be held at Ryerson University, Canada from August 24 to August 26, 2017.

The purpose of NBiS conference is to bring together developers and researchers to share ideas and research work in the emerging areas of network and information systems.

The contributions included in the proceedings of NBiS-2017 cover all aspects of theory, design and application of computer networks and information systems. There are many topics of information networking such as cloud computing, wireless sensor networks, ad-hoc networks, peer-to-peer systems, grid computing, social networking, multimedia systems and applications, security, distributed and parallel systems and mobile computing.

In this edition, 193 submissions were received from all over the world. Each submitted paper was peer-reviewed by Program Committee members and external reviewers who are experts in the subject area of the paper. Then, the Program Committee accepted 53 papers (about 27% acceptance ratio). In the conference program are also included the distinguished keynote addresses.

The organization of an International Conference requires the support and help of many people. First, we would like to thank all authors for submitting their papers. We would like to thank all Track Chairs and Program Committee Members, who carried out the most difficult work of carefully evaluating the submitted papers. We also would like to thank NBiS-2017 Workshops Chairs for organizing excellent workshops with NBiS-2017 conference.

We would like to give special thanks to Prof. Leonard Barolli and Prof. Makoto Takizawa the Chairs of the Steering Committee of NBiS for their strong encouragement, guidance, insights, and for their effective coordination of conference organization. We would like to greatly thank General Co-Chairs for their great support and invaluable suggestions to make the conference a very successful event. We would like to express our great appreciation to Dr. Makoto Ikeda for his great efforts and efficient work to deal with many conference matters.

We hope you will enjoy the conference and have a great time in Toronto, Canada.

### NBiS-2017 Program Committee Co-Chairs

**Hiroaki Kikuchi**, *Meiji University, Japan*
**Marek R. Ogiela**, *AGH, Poland*
**Vamsi Paruchuri**, *University of Central Arkansas, USA*

# Welcome Message from Workshops Co-Chairs of NBiS-2017 International Conference

Welcome to the NBiS-2017 Workshops to be held in conjunction with the 20-th International Conference on Network-Based Information Systems (NBiS-2017), which will be held at Ryerson University, Canada from August 24 to August 26, 2017.

The goal of NBiS-2017 workshops is to provide a forum for international researchers and practitioners to exchange and share their new ideas, research results, and ongoing work on leading-edge topics in the different fields of network-based information systems and their applications. Some of the accepted workshops deal with topics that open up perspectives beyond the ordinary, thus, enriching the topics usually addressed by the NBiS-2017 conference.

For this edition, the following workshops will be held with NBiS-2017.

1. The 12-th International Workshop on Network-based Virtual Reality and Tele-existence (INVITE-2017)

2. The 11-th International Workshop on Advanced Distributed and Parallel Network Applications (ADPNA-2017)

3. The 8-th International Workshop on Heterogeneous Networking Environments and Technologies (HETNET-2017)

4. The 8-th International Workshop on Intelligent Sensors and Smart Environments (ISSE-2017)

5. The 8-th International Workshop on Trustworthy Computing and Security (TwCSec-2017)

6. The 7-th International Workshop on Information Networking and Wireless Communications (INWC-2017)

7. The 6-th International Workshop on Advances in Data Engineering and Mobile Computing (DEMoC-2017)

8. The 6-th International Workshop on Web Services and Social Media (WSSM-2017)

We would like to thank the research community for their great response to NBiS-2017 workshops. The excellent technical program of the workshops was the result of a professional work from workshop chairs, workshop program committees, reviewers, and authors.

We would like to give our special thanks to Prof. Leonard Barolli and Prof. Makoto Takizawa the Steering Committee Chairs of NBiS conference for their strong encouragement and guidance to organize the NBiS-2017 workshops. We would like to thank NBiS-2017 General Co-Chairs and Program Co-Chairs for their advices to make possible organization of NBiS-2017 workshops.

We would like to express special thanks to NBiS-2017 Web Administration Chairs for their timely unlimited support for managing the conference systems. We also would like to thank NBiS-2017 Local Arrangement Co-Chairs and Local Organization Team Ryerson University, Canada for making the local arrangement for the conference and workshops.

We wish all of you entertaining and rewarding experience in all workshops and NBiS-2017 conference.

**Workshops Co-Chairs of NBiS-2017 International Conference**

**Sanjay Kumar Dhurandher**, *University of Delhi, India*
**Yusuke Gotoh**, *Okayama University, Japan*

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**Award Co-Chairs**
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**Local Arrangement Co-Chairs**
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Glaucio Carvalho, Ryerson University, Canada

**Finance Chair**
Makoto Ikeda, Fukuoka Institute of Technology, Japan

**Steering Committee Co-Chair**
Leonard Barolli, Fukuoka Institute of Technology, Japan

## Welcome Message from the INCoS-2017 Organizing Committee

Welcome to the 9th International Conference on Intelligent Networking and Collaborative Systems (INCoS-2017), which is held from 24th to 26th September 2017 at Ryerson University, Toronto, Canada.

INCoS is a multidisciplinary conference that covers latest advances in intelligent social networks and collaborative systems, intelligent networking systems, mobile collaborative systems, secure intelligent cloud systems, etc. Additionally, security, authentication, privacy, data trust and user trustworthiness behaviour has become crosscutting features of intelligent collaborative systems. With the fast development of the Internet, we are experiencing a shift from the traditional sharing of information and applications as the main purpose of the Web to an emergent paradigm, which locates people at the very centre of networks and exploits the value of people's connections, relations and collaboration. Social networks are also playing a major role in the dynamics and structure of intelligent Web-based networking and collaborative systems.

Virtual campuses, virtual communities and organizations strongly leverage intelligent networking and collaborative systems by a great variety of formal and informal electronic relations, such as business-to-business, peer-to-peer and many types of online collaborative learning interactions, including the emerging e-learning systems. This has resulted in entangled systems that need to be managed efficiently and in an autonomous way. In addition, latest and powerful technologies based on Grid and wireless infrastructure as well as Cloud computing are currently enhancing collaborative and networking applications a great deal but also facing new issues and challenges. Well-known social networks lack of knowledge management and adaptive solutions and the information shared among peers is rather static. INCoS-2017 conference paid a special attention to security, privacy and trust in Social networking, Cloud Computing Services and Storage, Organization, Management and Autonomic Computing, Hidden Complex Networks Resource Management and Optimization, etc.

The principal aim of this conference is to stimulate research that will lead to the creation of responsive environments for networking and, at longer-term, the development of adaptive, secure, mobile, and intuitive intelligent systems for collaborative work and learning. INCoS-2017 addressed a large number of themes and focuses on the following research tracks:

- Data Mining, Machine Learning and Collective Intelligence

- Fuzzy Systems and Knowledge Management

- Grid And P2P Distributed Infrastructure for Intelligent Networking and Collaborative Systems

- Nature's Inspired Parallel Collaborative Systems

- Security, Organization, Management and Autonomic Computing for Intelligent Networking and Collaborative Systems

- Wireless and Sensor Systems for Intelligent Networking and Collaborative Systems

- Service-based Systems for Enterprise Activities Planning and Management

- Big Data Analytics for Learning, Networking and Collaborative Systems

- Cloud Computing: Services, Storage, Security and Privacy

- Intelligent Collaborative Systems for Work and Learning, Virtual Organization and Campuses

- Social Networking and Collaborative Systems

- Intelligent Sensor Networks for Environmental Monitoring

As in all previous editions, INCoS-2017 counted on with the support and collaboration of a large and internationally recognized TPC covering all main themes of the conference. After a careful peer review process, in which each paper was reviewed by at least two referees (in average three reviews per submission), there were accepted 35 regular papers (30% acceptance rate). Additionally, four workshops were organized in conjunction with the conference, in which 24 workshop papers were accepted.

The successful organization of the conference is achieved thanks to the great collaboration and hard work of many people and conference supporters. First and foremost, we would like to thank all the authors for their continued support to the conference by submitting their research work to the conference, for their presentations and discussions during the conference days. We would like to thank TPC members and external reviewers for their work by carefully evaluating the submissions and providing constructive feedback to authors. We would like to thank the track chairs for their work on setting up the tracks and the respective TPCs and also for actively promoting the conference and their tracks. We would like to appreciate the work of PC Co-chairs and Workshops Co-Chairs for the successful organization of workshops in conjunction with main conference.

We would like to acknowledge the excellent work and support by the International Advisory Committee. Our gratitude and acknowledgment for the conference keynotes, Dr. Ann Cavoukian, Ryerson University, Canada and Prof. Shahrokh Valaee, University of Toronto, Canada, for their interesting and inspiring keynote speeches.

We greatly appreciate the support by Web Administrators Shinji Sakamoto, Yi Liu, Donald Elmazi and Miralda Cuka, Fukuoka Institute of Technology (FIT), Japan and Finance Chair Makoto Ikeda, Fukuoka Institute of Technology (FIT), Japan.

We would like to give special thanks to the members of the local organizing committee from Ryerson University, Toronto, Canada for excellent arrangements for the conference.

We are very grateful to Springer as well as several academic institutions for their technical sponsorship, endorsement and assistance.

Finally, we hope that you will find these proceedings to be a valuable resource in your professional, research and educational activities!

We wish you will enjoy your stay in Toronto, Canada and look forward to seeing you again in forthcoming edition of INCoS conference!

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**INCoS-2017 General Co-Chairs**

**Leonard Barolli**, *Fukuoka Institute of Technology, Japan*
**Isaac Woungang**, *Ryerson University, Canada*

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## Message from INCoS-2017 Workshops Chairs

Welcome to the Workshops of the 9th International Conference on Intelligent Networking and Collaborative Systems (INCoS-2017), which is held from 24th to 26th September 2017 at Ryerson University, Toronto, Canada. In this edition of the conference, there are held four workshops, which complemented the INCoS main themes with specific themes and research issues and challenges, as follows.

1. The 9th International Workshop on Information Network Design (WIND-2017)

2. The 5th International Workshop on Frontiers in Intelligent Networking and Collaborative Systems (FINCoS-2017)

3. The 3rd International Workshop for Collaborative e-Business Systems (IWCBS-2017)

4. The 3rd International Workshop on Theory, Algorithms and Applications of Big Data Science (BDS-2017)

We would like to thank the workshop organizers for their great efforts and hard work in proposing the workshop, selecting the papers, the interesting programs and for the arrangements of the workshop during the conference days. We are grateful to the INCoS-2017 Conference Chairs for inviting us to be the workshops co-chairs of the conference.

We hope you will enjoy the workshops programs and discussions during the conference days and enjoy your stay in Toronto, Canada!

### INCoS-2017 Workshops Co-Chairs

**Xu An Wang**, *Engineering University of CAPF, China*
**Kin Fun Li**, *University of Victoria, Canada*

# NBiS-2017 & INCoS-2017 Keynote I



**Dr. Ann Cavoukian, Ryerson University, Canada**

**Network and Information Systems Need to Embed Privacy & Security, by Design**

**Abstract:** Privacy is under siege. With the growth of ubiquitous computing, online connectivity, social media, and wireless and wearable devices, people are being led to believe they have no choice but to give up on privacy. Not so! Dr. Cavoukian will outline a privacy framework called Privacy by Design that will enable our privacy and our freedom, to live now and well into the future. While some believe that fundamental privacy protections will be challenged by the operation of Big Data and the Internet of Things, Dr. Cavoukian dispels the notion that privacy acts as a barrier to data analytics and the innovations they can spark. She argues that the limiting paradigm of "zero-sum" – that you can either have privacy or innovation, but not both – is an outdated, win/lose model of approaching the question of privacy in the age of Big Data, IoT, Network, and Information Systems. Instead, a "positive-sum" solution is needed in which the interests of both sides may be met, in a doubly-enabling, "win-win" manner through Privacy by Design (PbD). PbD is predicated on the rejection of zero-sum propositions by proactively identifying the risks and embedding the necessary protective measures into the IT and data architecture involved. Dr. Cavoukian will demonstrate how you can embed privacy into virtually any system or operation to achieve positive-sum outcomes, enabling both privacy and data utility – not one at the expense of the other.

# NBiS-2017 & INCoS-2017 Keynote II



**Prof. Shahrokh Valaee, University of Toronto, Canada**

**Cooperative Self-driving Vehicles**

**Abstract:** Can autonomous driving fully replace the driver with a smart control system? We are witnessing the emergence of Self-Driving Vehicles, which intend to be an assistant to, or completely replace the driver. Unfortunately, we also hear about accidents that such autonomous vehicles are involved in. In this talk, we will show that autonomous driving will indeed be the start of a new chapter for automobiles that will pave the path for the more advanced Connected Car technology. Despite much progress in manufacturing sophisticated vehicles, the communication methods among drivers on roads are still primitive, through visual contact. Autonomous driving addresses some of these issues by using advance sensing to enhance safety. However, sensing quickly loses its effectiveness in high speeds, severe weather conditions, and non-line-of-sight. This talk will explore the need for communication in smart vehicles and discusses the research challenges. We will investigate both the WiFi and 5G cellular technologies and study their role in cooperative self-driving vehicles.

# NBiS-2017
# Main Conference and Workshops Program

**Thursday, August 24, 2017**

## 08:00 Registration

## 09:00-10:30 Single Session: Opening Ceremony and NBiS-2017 & INCoS-2017 Keynote I

**NBiS-2017 & INCoS-2017 Keynote Talk I (Room EPH 207 (Eric Palin Hall))**

**Dr. Ann Cavoukian, Ryerson University, Canada:** Network and Information Systems Need to Embed Privacy & Security, by Design

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## 10:30-11:00 Coffee Break

## 11:00-13:00 Parallel Sessions

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### NBiS-S1: Smart Grid and Energy Efficient Systems

### Chair: Makoto Takizawa, Hosei University, Japan

1. An Eco Algorithm for Dynamic Migration of Virtual Machines in a Server Cluster
   *Dilawaer Duolikun, Ryo Watanabe, Tomoya Enokido, and Makoto Takizawa*

2. A Simple Energy-aware Virtual Machine Migration Algorithm in a Server Cluster
   *Ryo Watanabe, Dilawaer Duolikun, Qin Cuiqin, Tomoya Enokido, and Makoto Takizawa*

3. Energy-Efficient Role Ordering Scheduler
   *Tomoya Enokido, Dilawaer Duolikun, and Makoto Takizawa*

4. Biogeography based Optimization for Home Energy Management in Smart Grid
   *Hina Iftikhar, Salma Asif, Rubab Maroof, Khadija Ambreen, Hasan Nasir Khan and Nadeem Javaid*

5. Demand Side Management using Strawberry Algorithm and Bacterial Foraging Optimization Algorithm in Smart Grid
   *Hasan Nasir Khan, Hina Iftikhar, Salma Asif, Rubab Maroof, Khadija Ambreen, and Nadeem Javaid*

6. Demand Side Management Using Meta-heuristic Techniques and ToU in Smart Grid
   *Sajeeha Ansar, Wajeeha Ansar, Kainat Ansar, Mohammad Hashir Mehmood, Muhammad Zabih Ullah Raja and Nadeem Javaid*

### NBiS-S2: Intelligent Systems

### Chair: Leonard Barolli, Fukuoka Institute of Technology, Japan

1. Hybrid Learning Using Profit Sharing and Genetic Algorithm for Partially Observable Markov Decision Processes
   *Kohei Suzuki, Shohei Kato*

2. A Fuzzy-based Approach for Improving Team Collaboration in MobilePeerDroid Mobile System: Effects of Time Delay on Collaboration Work
   *Yi Liu, Kosuke Ozera, Keita Matsuo, Leonard Barolli*

3. A GA-Based Simulation System for WMNs: A Comparison Study for Different WMN Architectures Considering Exponential and Weibull Distributions, HWMP and TCP Protocols
   *Admir Barolli, Tetsuya Oda, Makoto Ikeda, Leonard Barolli and Makoto Takizawa*

4. Effect of Packet Error Rate on Selection of Actor Nodes in WSANs: A Comparison Study of Two Fuzzy-based Systems
   *Donald Elmazi, Miralda Cuka, Tetsuya Oda, Elis Kulla, Makoto Ikeda, Leonard Barolli*

5. Energy Management in Residential Area using Genetic and Strawberry Algorithm
   *Salma Asif, Khadija Ambreen, Hina Iftikhar, Hasan Nasir Khan, Rubab Maroof and Nadeem Javaid*

### WSSM-S1: Web Applications and Systems

### Chair: Shusuke Okamoto, Seikei University, Japan

1. A Web Application for Passengers to Watch Coming Buses in Rural Areas
   *Yukiya Yamaguchi, Ryosuke Iiya, Michitoshi Niibori, Erjing Zhou, Masaru Kamada, Osamu Saitou and Susumu Shibusawa*

2. An HTML5 Implementation of Web-Com for Recording Chalk Annotations and Talk Voices onto Web Pages
   *Shuji Ogawa, Michitoshi Niibori, Tatsuhiro Yonekura and Masaru Kamada*

3. A Block-Based Structure Editor for the English Language
   *Osamu Goto, Michitoshi Niibori and Masaru Kamada*

4. A Web-based Visualization System for Interdisciplinary Research using Japanese Local Political Corpus
   *Hokuto Ototake, Hiroki Sakaji, Keiichi Takamaru, Akio Kobayashi, Yuzu Uchida, and Yasutomo Kimura*

5. ELVIDS: Video Search System Prototype with a Three-level Hierarchy Model
   *Tongjin Lee and Jun Iio*

6. Text-Based Video Scene Segmentation: A Novel Method to Determine Shot Boundaries
   *Jun Iio and Tongjin Lee*

## TwCSec-S1: Secure Systems and Applications

## Chair: Hiroaki Kikuchi, Meiji University, Japan

1. Secure Non-Transferable Proxy Re-Encryption for Group Membership and Non-Membership
   *Ei Mon Cho, Lwin San, and Takeshi Koshiba*

2. A Performance Evaluation of Data Storage Approach for High Availability and Confidentiality on Multi-Cloud
   *Yamato Miura, Naoki Wakabayashi, Shohei Ueno, Atsushi Kanai, Shigeaki Tanimoto and Hiroyuki Sato*

3. Risk of Re-identification Based on Euclidean distance in Anonymized Data PWSCUP2015
   *Satoshi Ito, Hiroaki Kikuchi*

4. Efficient Secure Arithmetic on Floating Point Numbers
   *Wakana Omori, Akira Kanaoka*

# 13:00-14:00 Lunch Break

# 14:00-16:00 Parallel Sessions

## NBiS-S3: Energy and Power Management Systems

## Chair: Tomoya Enokido, Rissho University, Japan

1. An Energy-aware One-to-one Routing Protocol in Wireless Ad-hoc Network
   *Emi Ogawa, Shigenari Nakamura, Tomoya Enokido, and Makoto Takizawa*

2. Development of a Monitoring System Based on Power Consumption
   *Kentaro Aburada, Kengo Todaka, Hisaaki Yamaba, Tetsuro Katayama, Mirang Park, Norio Shiratori and Naonobu Okazaki*

3. Home Energy Management based on Harmony Search Algorithm and Crow Search Algorithm
   *Ishtiaq Ali, Pamir, Muhammad Sufyan Khan, Hazrat Abubakar Sadiq, Syed Hasnain Faraz and Nadeem Javaid*

4. Meta-heuristic and Nature Inspired Approaches for Home Energy Management
   *Zain Ul Abideen, Fouzia Jamshaid, Asma Zahra, Anwar Ur Rehman, Sidra Razzaq, Nadeem Javaid*

5. Home Energy Management Using Social Spider and Bacterial Foraging Algorithm
   *Waqar Ali, Anwar Ur Rehman, Muhammad Junaid, Sayed Ali Asjad Shaukat, Zafar Faiz and Nadeem Javaid*

6. Home Energy Management Using HSA, FA, BFOA Algorithms in Smart Grids
   *Asma Zahra, Zain Ul Abideen, Anwaar Ur Rehmaan, Sidra Razzaq, Ayesha Anjum and Nadeem Javaid*

**NBiS-S4: Network Protocols and Algorithms**

**Chair: Makoto Takizawa, Hosei University, Japan**

1. A Comparison Study of WLAN and WLAN Triage Systems Considering Throughput Parameter
   *Kosuke Ozera, Takaaki Inaba, Shinji Sakamoto and Leonard Barolli*

2. Evaluation of Flexible Synchronization Protocol to Prevent Illegal Information Flow in P2PPS Systems
   *Shigenari Nakamura, Lidia Ogiela, Tomoya Enokido, and Makoto Takizawa*

3. Delay Tolerant Networking with Antenna Directional Controls with the Weight Function for the Multiple Vehicular Communication
   *Noriki Uchida, Tomoyuki Ishida, Yoshitaka Shibata*

4. Comparison of BFA and EWA in Home Energy Management System using RTP
   *Syed Hassnain Faraz, Sajawal ur Rehman, Muhammad Azeem Sarwar, Ishtiaq Ali, Mashab Farooqi and Nadeem Javaid*

5. Directional Preference Collector Tree Protocol for Mobile Wireless Sensing
   *David Krynicki and Ramiro Liscano*

6. A k-Nearest Neighbour Query Processing Strategy Using the mqr-Tree
   *Wendy Osborn*

**WSSM-S2: Extraction and Analysis**

**Chair: Masayuki Ihara, NTT Service Evolution Laboratories, Japan**

1. Comparison of Typing Efficiency between PC and Smartphone in the Case of Younger Generations
   *Mitsuhiko Kai, Takuya Tsukamoto, and Jun Iio*

2. Activity Estimation Using Device Positions of Smartphone Users
   *Yuki Oguri, Shogo Matsuno, Minoru Ohyama*

3. A Topic Trend on P2P based Social Media
   *Masaki Kohana, Hiroki Sakaji, Akio Kobayashi and Shusuke Okamoto*

4. A Method for Extracting Correct Links from Automatic Created Links on Folksonomy
   *Akio Kobayashi, Hiroki Sakaji, and Masaki Kohana*

5. Extracting Laboratory Front Pages from University Websites
   *Hiroki Sakaji, Atsuya Miyazaki, Hiroyuki Sakai, and Kiyoshi Izumi*

**TwCSec-S2: Secure Sharing Schemes and Cyber Attacks**

**Chair: Hiroaki Kikuchi, Meiji University, Japan**

1. Highly Responsive Distributed Denial-of-Service Attacks Detection by Using Real-Time Burst Detection Method
   *Shotaro Usuzaki, Yuki Arikawa, Hisaaki Yamaba, Kentaro Aburada, Shin-Ichiro Kubota, Mirang Park, and Naonobu Okazaki*

2. An Extension of $(2, m(m+1)/2)$-threshold Secret Sharing Schemes
   *Yuji Suga*

3. High-speed Forensic Technology against Targeted Cyber Attacks (Extended Abstract)
   *Yuki Unno, Takanori Oikawa, Kazuyoshi Furukawa, Masanobu Morinaga, Masahiko Takenaka, Tetsuya Izu*

4. Function Secret Sharing Using Fourier Basis
   *Takuya Ohsawa, Naruhiro Kurokawa, and Takeshi Koshiba*

## 16:00-16:30 Coffee Break

## 16:30-18:30 Parallel Sessions

**NBiS-S5: Security and Privacy**

**Chair: Hiroaki Kikuchi, Meji University, Japan**

1. Security of Visual Captcha for Authentication Procedures
   *Urszula Ogiela, Makoto Takizawa, Lidia Ogiela*

2. A Study of Detecting Child Pornography on Smart Phone
   *Farkhund Iqbal, Andrew Marrington, Patrick C. K. Hung, Jing-Jie Lin, Guan-Pu Pan, Shih-Chia Huang, Benjamin Yankson*

3. Computational Public Safety: The Evolution to Public Safety Research
   *Nhan Tran, Muthana Zouri, Alex Ferworn*

4. Tor Fingerprinting: Tor Browser Can Mitigate Browser Fingerprinting?
   *Takamichi Saito, Kazushi Takahashi, Koki Yasuda, Kazuhisa Tanabe, Masayuki Taneoka, Ryohei Hosoya*

5. Study on Persuasion Effect of Computer Virus Measures based on Collective Protection Motivation Theory
   *Noriaki Yoshikai, Kana Shimbo, John Stavrakakis, Toshio Takahashi*

6. Empirical Evaluation of Rhythm-based Authentication Method for Mobile Devices
   *Takahiro Hori, Yoshihiro Kita, Kentaroh Toyoda, Naonobu Okazaki, Mirang Park*

**NBiS-S6: WMNs and WSNs**

**Chair: Vamsi Paruchuri, University of Central Arkansas, USA**

1. Load Balancing in Wireless Mesh Networks Based on OpenFlow
   *Shota Kubota and Fumiaki Sato*

2. Beyond Beacons - An Interactive Positioning and Tracking System Solely Based on BLE Mesh Network
   *You-Wei Lin and Chi-Yi Lin*

3. Performance Evaluation of WMNs by WMN-PSOSA Simulation System Considering Constriction and Linearly Decreasing Inertia Weight Methods
   *Shinji Sakamoto, Kosuke Ozera, Makoto Ikeda and Leonard Barolli*

4. LEAS: A Load-aware Energy-efficient Adaptive Scheduling for Heterogeneous Wireless Sensor Networks
   *Vamsi Paruchuri, Arjan Durresi*

5. A Localization Free Variable Transmit Power Routing Protocol for Underwater Wireless Sensor Networks
   *Anwar Khan, Ihsan Ali, and Hasan Mahmood*

6. Data Collecting System based on CCN with Congestion Avoidance Routing on WSN
   *Tetsuro Kuniyasu and Tetsuya Shigeyasu*

**INWC-S1: Mobile Comuting and Communication**

**Chair: Elis Kulla, Okayama University of Science, Japan**

1. A Modified Energy-Aware B.A.T.M.A.N Routing Protocol
   *Hiroya Oda, Elis Kulla, and Kengo Katayama*

2. BER Comparison of Constant Envelope DCT and FFT Based OFDM with Phase Modulation
   *Rayan H. Alsisi and Raveendra K. Rao*

3. Design of Microwave Circuit with Periodic Structure for Channel Switching by Carrier Frequency
   *Hiroshi Maeda, Xiang Zheng Meng, Keisuke Haari and Naoki Higashinaka*

4. A Message Suppression Method for Inter-Vehicle Communications
   *Makoto Ikeda, Daichi Koga, Yu Yoshino and Leonard Barolli*

5. Demand Side Management using Strawberry and Enhanced Differential Evolution Algorithms
   *Hazrat Abubakar Sadiq, Muhammad Sufyan Khan, Ihsan Ali, Ishtiaq Ali, Pamir and Nadeem Javaid*

6. A Heuristic Scheduling Approach for Demand Side Energy Management
   *Sikandar Asif, Sundas Shafiq, Iqra Fatima, CH Anwar ul Hassan, Zain Ul Abideen and Nadeem Javaid*

**ADPNA-S1: Distributed and Parallel Systems**

**Chair: Tomoya Enokido, Rissho University, Japan**

1. Hybrid Replication Schemes of Processes in Energy-efficient Server Clusters
   *Ryuji Oma, Shigenari Nakamura, Tomoya Enokido, and Makoto Takizawa*

2. Gossip-style Message Dissemination based on Biconnected Components
   *Takumu Hirooka, Daisuke Yamamasu and Naohiro Hayashibara*

3. Energy Efficient Raft Consensus Algorithm
   *Takuro Nakagawa and Naohiro Hayashibara*

4. Scalable Distributed Data Analysis on Structured P2P Network
   *Atsushi Takeda*

5. Risk Assessment for Privacy Protection of Information Literacy Beginners in Big Data Era
   *Shigeaki Tanimoto, Shun Totsuka, Motoi Iwashita, Yoshiaki Seki, Hiroyuki Sato, Atsushi Kanai*

6. Performance Evaluation of Peer–to–Peer Network
   *Kazunori Ueda*

## 19:00-21:00 Welcome Reception Party

Ramada Plaza Toronto Hotel
300 Jarvis Street, Toronto, Ontario, M5B 2C5
Tel: 416 977 4823
`http://www.ramadaplazatoronto.com`

# Friday, August 25, 2017

## 08:00 Registration

## 09:00-10:30 Single Session: NBiS-2017 & INCoS-2017 Keynote II

**NBiS-2017 & INCoS-2017 Keynote Talk II (Room EPH 207 (Eric Palin Hall))**

**Prof. Shahrokh Valaee, University of Toronto, Canada:** Cooperative Self-driving Vehicles

## 10:30-11:00 Coffee Break
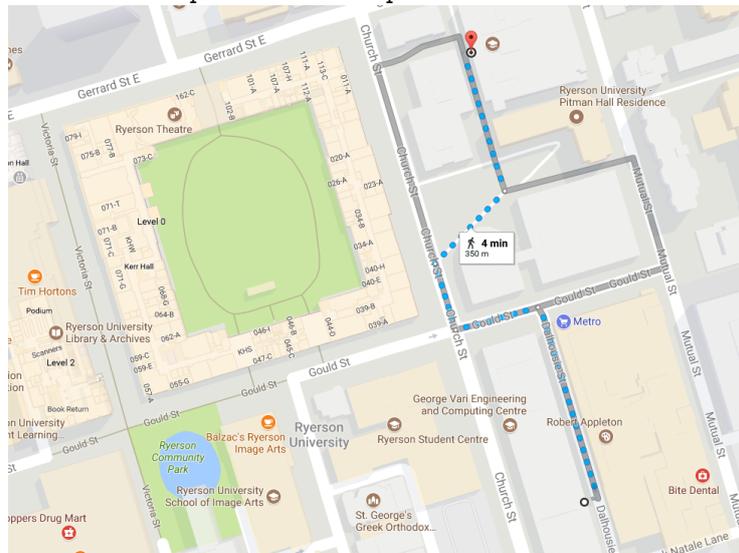
## 11:00-13:00 Parallel Sessions

**NBiS-S7: Network Security and Network Applications**

**Chair: Mirang Park, Kanagawa Institute of Technology, Japan**

1. An Efficient Privacy-preserving Comparison Protocol
   *Tushar Kanti Saha and Takeshi Koshiba*

2. QoS aware Virtual Network Embedding in SDN-based Metro Optical Network
   *Faisal Zaman, Abdallah Jarray, and Ahmed Karmouch*

3. Verification of Data Collection Methods for Live Migration Protection Mechanism
   *Toshihiro Uchibayashi, Yuichi Hashi, Seira Hidano, Shinsaku Kiyomoto, Takuo Suganuma, Masahiro Hij*

4. Slyware Prevention: Threat of Websites Inducing Accidental Taps and Countermeasures
   *Kohei Mukaiyama, Masahiro Fujita, Takeharu Shirai, Shinya Kobayashi, Masakatsu Nishigaki*

5. Load Experiments of the vDACS Scheme in case of the 600 connections by00 clients
   *Kazuya Odagiri, Shogo Shimizu, Naohiro Ishii, Makoto Takizawa*

6. Evaluation and Improvement of Farmers Market Information System to Connect with Some Social Stakeholders
   *Isakwisa Gaddy Tende, Shin-Ichiro Kubota, Kentaro Aburada, Naonobu Okazaki*

**NBiS-S8: Wireless and Mobile Networks**

**Chair: Isaac Woungang, Ryerson University, Canada**

1. Mobility Information Infrastructure in Challenged Network Environment Based on IoT Technology
   *Yoshitaka Shibata, Kenta Ito*

2. GD-CAR: A Genetic Algorithm Based Dynamic Context Aware Routing Protocol for Opportunistic Networks
   *Deepak Kumar Sharma, Sanjay Kumar Dhurander, Isaac Woungang, Aman Bansal, Apoorv Gupta*

3. A Method for Vehicle Control at T-Junctions for the Diffusion Period of Autonomous Vehicles
   *Hiroto Furukawa, Masashi Saito, Yuichi Tokunaga, Ryozo Kiyohara*

4. Mechanism for Adopting Device-to-Device Communication in Cellular Networks
   *Bhed Bahadur Bista, Jiahong Wang and Toyoo Takata*

5. Optimal Transmission Range in Sleeping Wireless Networks
   *Vamsi Paruchuri and Arjan Durresi*

6. Dynamic Resource Adaptation Method by Cooperative User Devices in Wireless Network
   *Kazuaki Togawa, Koji Hashimoto*

**INVITE-S1: Multimedia Applications**

**Chair: Yoshitaka Shibata, Iwate Prefectural University, Japan**

1. Implementation of a Community-Based Disaster Prevention Information System
   *Tomoyuki Ishida, Yusuke Hirohara, Noriki Uchida, Yoshitaka Shibata*

2. Ultra Definition Display Environment for Disaster Management GIS
   *Akira Sakuraba, Tomoyuki Ishida, Koji Hashimoto, Yoshitaka Shibata*

3. Development and Evaluation of Operation Interface for Lesson using Large-scale Screen in Elementary and Secondary Education
   *Yasuo Ebara, Hiroshi Hazama*

4. A study on the Operation of Infrastructure Management System with Citizens' Participation Using the ICT Technology
   *Miki Kuroki, Michitoshi Niibori, Tomoyuki Ishida, Tatsuhiro Yonekura*

**DEMoC-S1: Data Engineering and Mobile Computing**

**Chair: Yusuke Gotoh, Okayama University, Japan**

1. Generating Manzai-scenario using entity mistake
   *Satoshi Aoki, Tomohiro Umetani, Tatsuya Kitamura, and Akiyo Nadamoto*

2. A $k$-anonymized Text Generation Method
   *Yu Suzuki, Koichiro Yoshino, Satoshi Nakamura*

3. A System Design for Detecting Moving Objects in Capturing Video Images using Laser Range Scanners
   *Yoshimasa Ishi, Tomoya Kawakami, Tomoki Yoshihisa, Yuuichi Teranishi and Shinji Shimojo*

4. Proposition of Division-based Broadcasting System for Delivering Multiple Videos
   *Yusuke Gotoh and Yusuke Inoue*

# 13:00-14:00 Lunch Break

# 14:00-16:00 Parallel Sessions

**NBiS-S9: Multimedia and Web Applications**

**Chair: Makoto Takizawa, Hosei University, Japan**

1. Performance Evaluation of a Learning Logger System for Active Learning Using Smartphone
   *Noriyasu Yamamoto, Noriki Uchida*

2. Validation of 3D Convolutional Neural Networks for Customer Satisfaction Estimation using Videos
   *Tomofumi Nakano, Shohei Kato*

3. Resource Propagation Algorithm to Reinforce Knowledge base in Linked Data
   *Toshitaka Maki, Kazuki Takahashi, Toshihiko Wakahara*

4. Metadata Complement Method by Linked Open Data for Literature Search
   *Toshihiko Wakahara, Toshitaka Maki, Kazuki Takahashi*

5. Neuro-evolutionary Approach to Multi-objective Optimization in One-Player Mahjong
   *Koya Ihara, Shohei Kato*

6. A Method for Improving Cache Hit Ratio by Virtual Capacity Multiplication
   *Miho Aoki, Tetsuya Shigeyasu*

**ISSE-S1: Intelligent and Smart Environments**

**Chair: Takahiro Uchiya, Nagoya Institute of Technology, Japan**

1. A transmission method to guarantee QoS parameters in Wireless sensor network
   *M. Kordlar, G. Ekbatanifard, A. Jahangiry, R. Ahmadi*

2. 3D Model Generation of Black Cattle Using Multiple RGB Cameras for Their BCS
   *Hiroki Tamari, Shohei Nakamura, Shigeru Takano, Yoshihiro Okada*

3. Load Scheduling Optimization using Heuristic Techniques and Combined Price Signal
   *Iqra Fatima, Sikandar Asif, Sundas Shafiq, Ch Anwar ul Hassan, Sajeeha Ansar and Nadeem Javaid*

4. Home Energy Managment System using Meta-Heuristic Techniques
   *Tamour Bilal, Muhammad Awais, Muhammad Junaid, Zafar Faiz, Mujeeb Ur Rehman and Nadeem Javaid*

5. Improvement of Indoor Position Estimation of Open-Campus Event System using BLE Beacon
   *Takahiro Uchiya, Kiyotaka Sato, Shinsuke Kajioka, Daisuke Yamamoto, Ichi Takumi*

6. Development of Review Selection System reflecting User Preference Using SVM
   *Yuto Ishida, Takahiro Uchiya, Ichi Takumi*

**INVITE-S2: Virtual Reality**

**Chair: Tomoyuki Ishida, Ibaraki University, Japan**

1. An automatic image registration method using downhill simplex method and its applications
   *Akio Doi and Tomohiro Chiba*

2. Multilingual Information Service based on Combination of Smartphone and Digital Signage
   *Tetsuro Ogi, Kenichiro Ito, Seiichiro Ukegawa*

3. Implementation of Multimedia Contents for Supporting Different Types of Self-learning
   *Takuya Inumaru and Kaoru Sugita*

4. Development of integrated visual analytic tool with 3D visualization
   *Hideo Miyachi, Isamu Kuroki, Daisuke Matsuoka, Koji Koyamada*

**HETNET-S1: Heterogeneous Networking and Applications**

**Chair: Jugappong Nawichai, Chiang Mai University, Thailand**

1. Residential Area Power Management using Genetic Algorithm and Biogeography based Optimization in Smart Grid
   *Rubab Maroof, Hasan Nasir Khan, Khadija Ambreen, Hina Iftikhar, Salma Asif and Nadeem Javaid*

2. A Social Spider Optimization based Home Energy Management System
   *Mujeeb Ur Rehman,Tamour Bilal, Muhammad Awais, Muhammad Junaid, Asma Zahra and Nadeem Javaid*

3. Collecting Data in Sensor Networks using Homesick Lévy Walk
   *Kouichirou Sugihara and Naohiro Hayashibara*

4. Privacy Preservation for Trajectory Data Publishing and Heuristic Approach
   *Nattapon Harnsamut and Juggapong Natwichai*

## 19:00-21:00 Banquet Party

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**Saturday, August 26, 2017**

### NBiS-2017 Organizing Committee Meeting and Discussion

# INCoS-2017
# Main Conference and Workshops Program

**Thursday, August 24, 2017**

## 08:00 Registration

## 09:00-10:30 Single Session: Opening Ceremony and NBiS-2017 & INCoS-2017 Keynote I

**NBiS-2017 & INCoS-2017 Keynote Talk I (Room EPH 207 (Eric Palin Hall))**

   **Dr. Ann Cavoukian, Ryerson University, Canada:** Network and Information Systems Need to Embed Privacy & Security, by Design

## 10:30-11:00 Coffee Break

## 11:00-13:00 Parallel Sessions

**INCoS-S1: Inteligent Networking Algorithms**

**Chair: Omar Khadeer Hussain, UNSW Canberra, Australia**

1. Fine Tuning a Bayesian Network and Fairly Allocating Resources to Improve Procurement Performance
   *Mohammad Hassan Abolbashari, Omar Khadeer Hussain, Morteza Saberi, Elizabeth Chang*

2. Space-filling Curves based on Residue Number System
   *Jan Platoš, Jana Nowaková, Pavel Krömer, and Václav Snášel*

3. A Fuzzy-based System for Selection of IoT Devices in Opportunistic Networks Considering IoT Device Speed, Storage and Remaining Energy Parameters
   *Miralda Cuka, Donald Elmazi, Tetsuya Oda, Elis Kulla, Makoto Ikeda, Leonard Barolli*

4. A Rudimentary Approach to Unmanned Aerial Vehicle Guided Improvised Explosive Device Shrapnel Dispersal SimulationChristopher
   *C.K. Chan, Dr. Alexander Ferworn, David Tran*

5. Demand Side Management using Bacterial Foraging and Crow Search Algorithm Optimization Techniques
   *Almas Tabssam, Komal Pervaz, Arje Saba, Zain ul Abdeen, Mashab Farooqi and Nadeem Javaid*

6. A New Two-Stage Algorithm for Constructing Group Multicast Tree with Bandwidth Constraint
   *Meng Sun, Xinchang Zhang, Jianwei Zhang*

**INCoS-S2: Modelling and Performance of Collaborative Systems**

**Chair: Pavel Kromer, VSB Technical University of Ostrava, Czech Republic**

1. Multi-Agent Collaborative Planning in Smart Environments
   *Flora Amato, Nicola Mazzocca, Francesco Moscato, Fatos Xhafa*

2. Performance Analysis of WMNs by WMN-GA Simulation System for Different WMN Architectures and TCP Congestion-Avoidance Algorithms Considering Normal and Uniform Distributions
   *Keita Matsuo, Shinji Sakamoto, Tetsuya Oda, Admir Barolli, Makoto Ikeda, Leonard Barolli*

3. Sentiment Analysis of Specific Product's Features Using Product Tree for Application in New Product Development
   *Monireh Alsadat Mirtalaie, Omar Khadeer Hussain, Elizabeth Chang, Farookh Khadeer Hussain*

4. Open Proctor: An Academic Integrity Tool for the Open Learning Environment
   *Alexander Amigud, Joan Arnedo-Moreno, Thanasis Daradoumis and Ana-Elena Guerrero-Roldan*

5. Scheduling of Appliances in Home Energy Management System using Elephant Herding Optimization and Enhanced Differential Evolution
   *Muhammad Azeem Sarwar, Basit Amin, Nasir Ayub, Syed Hassnain Faraz, Sajawal ur Rehman Khan and Nadeem Javaid*

6. Research and Realization of News Gathering and Editing System based on Distributed Search Engine
   *Yamin Han, Kun Liu and Kun Ma*

# 13:00-14:00 Lunch Break

# 14:00-16:00 Parallel Sessions

**INCoS-S3: Machine Learning Algorithms**

**Chair: Farookh Khadeer Hussain, University Technology Sydney, Australia**

1. A Heuristic Machine Learning Based Approach for Utilizing Scarce data in Estimating Fuel Consumption of Heavy Duty Trucks
   *Atefe Zakeri, Morteza Saberi, Omar Khadeer Hussain, Elizabeth Chang*

2. Performance Evaluation of a Deep Q-Network Based Simulation System for Actor Node Mobility Control in Wireless Sensor and Actor Networks Considering Three-dimensional Environment
   *Tetsuya Oda, Donald Elmazi, Miralda Cuka, Elis Kulla, Makoto Ikeda, Leonard Barolli*

3. k-Core Decomposition on Giraph and Graph
   *ChiXin Hu, Fangming Liu, Venkatesh Srinivasan, Alex Thomo*

4. Research on the Connotation and Measurement of Uncertainty for Reassembly Dimensions based on Entropy
   *Liu Conghu, He Kang*

5. A New Meta-Heuristic Optimization Algorithm Inspired from Strawberry Plant for Demand Side Management in Smart Grid
   *Muhammad Sufyan Khan, CH Anwar ul Hassan, Hazrat Abubakar Sadiq, Ishtiaq Ali, Asad Rauf and Nadeem Javaid*

6. Demand Side Management Using Chicken Swarm Optimization
   *Zafar Faiz, Tamour Bilal, Muhammad Awais, Pamir, Sundas Gull and Nadeem Javaid*

**WIND-S1: Network Design, Management and Performance**

**Chair: Masato Tsuru, Kyushu Institute of Technology, Japan**

1. Method for Determining Recovery Order against Intermittent Link Failures
   *Tsuyoshi Yamasaki and Hiroyoshi Miwa*

2. Method for Finding Protected Links to Keep Robust Network against Link Failure Considering Failure Probability
   *Keyaki Uji and Hiroyoshi Miwa*

3. Network Design Method by Link Protection to Keep Connectivity and Communication Quality to Servers
   *Daishi Irie and Hiroyoshi Miwa*

4. When does Network Coding benefit Store-Carry-and-Forwarding networks in practice?
   *Rabenirina Aina Tsiory, Masato Tsuru and Agussalim*

5. Fairness Aspects of Secondary Radio Spectrum Access
   *Mario Köppen and Masato Tsuru*

## 16:00-16:30 Coffee Break

## 16:30-18:30 Parallel Sessions

**INCoS-S4: Clustering Algorithms**

**Chair: Marek R. Ogiela, AGH University, Krakow, Poland**

1. Enhancing Ant Brood Clustering with Adaptive Radius of Perception and Non-Parametric Estimation on Multicore Architectures
   *Mohmmed Qasem, Ying Ying Liu, Ziyue Wang, Parimala Thulasiraman and Ruppa K. Thulasiram*

2. A Bayesian Network for improving Organizational Regulations Effectiveness: Concurrent Modeling of Organizational Resilience Engineering and Macro-Ergonomics Indicators
   *A. Azadeh, M. Partovi, M. Saberi, Elizabeth Chang, Omar Hussain*

3. Behavioral Keys in Cryptography and Security Systems
   *Marek R. Ogiela, Lidia Ogiela*

4. Performance Evaluation of an IoT-Based E-Learning Testbed Using Mean-shift Clustering Approach Considering Theta Type of Brain Waves
   *Masafumi Yamada, Miralda Cuka, Yi Liu, Tetsuya Oda, Keita Matsuo, Leonard Barolli*

5. Energy Optimization in Smart Grid using Grey Wolf Optimization Algorithm and Bacterial Foraging Algorithm
   *CH Anwar ul Hassan, Muhammad Sufyan Khan, Asad Ghafar, Syeda Aimal, Sikandar Asif and Nadeem Javaid*

6. An Efficient Scheduling of Power and Appliances Using Metaheuristic Optimization Technique
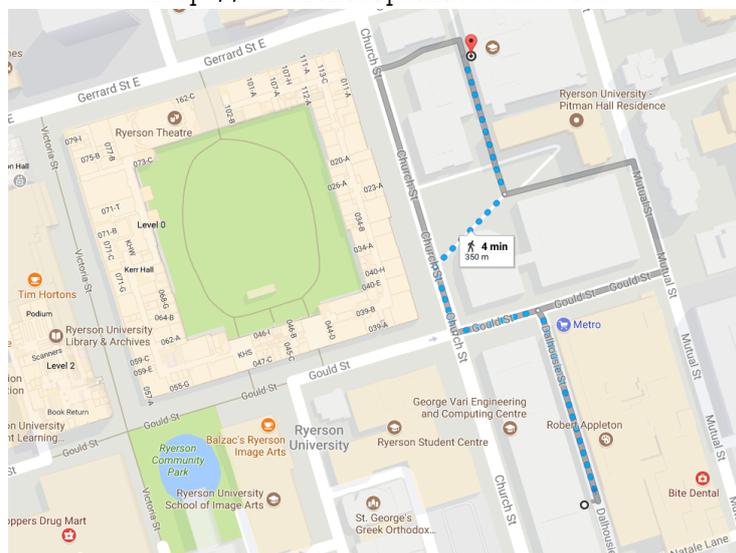   *Nasir Ayub, Adnan Ishaq, Mudabbir Ali, Muhammad Azeem Sarwar, Basit Amin and Nadeem Javaid*

**BDS-S1: Algorithms and Applications of Big Data**

**Chair: Marcello Trovati, Edge Hill University, UK**

1. Research on Behavior Modeling and Property Verification for Cyber-Physical Systems
   *Mingfu Tuo, Cheng Zhou, Zhonghai Yin, Xin Zhao, Lei Wang*

2. Pigeon Inspired Optimization and Enhanced Differential Evolution using Time of Use Tariff in Smart Grid
   *Hafsa Arshad, Saadia Batool, Zunaira Amjad, Mudabbir Ali, Syeda Aimal and Nadeem Javaid*

3. The "Gut-Feeling" in the Decision-Making Process: A Computationally Efficient Approach to Influence Relation Assessment
   *Olayinka Johnny, Marcello Trovati, and Jeffrey Ray*

4. A Preliminary Automated Approach to Assess Hospital Patient Feedback
   *Jeffrey Ray, Marcello Trovati, and Simon Minford*

5. A Survey of Topological Data Analysis (TDA) Methods Implemented in Python
   *Jeffrey Ray, and Marcello Trovati*

## 19:00-21:00 Welcome Reception Party

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# Friday, August 25, 2017

## 08:00 Registration

## 09:00-10:30 Single Session: NBiS-2017 & INCoS-2017 Keynote II

**NBiS-2017 & INCoS-2017 Keynote Talk II (Room EPH 207 (Eric Palin Hall))**

**Prof. Shahrokh Valaee, University of Toronto, Canada:** Cooperative Self-driving Vehicles

## 10:30-11:00 Coffee Break

## 11:00-13:00 Parallel Sessions

**INCoS-S5: Meta-heuristics Algorithms for Networking and Collaborative Systems**

**Chair: Enrique Alba, University of Malaga, Spain**

1. Designing An Efficient Self-adaptive Parallel Algorithm Using Math Oracles
   *Gabriel Luque and Enrique Alba*
2. Wind Speed Prediction with Genetic Algorithm
   *Michal Prilepok*
3. Evaluation of Pseudorandom Number Generators Based on Residue Arithmetic in Differential Evolution
   *Pavel Krömer, Jan Platoš and Václav Snášel*
4. Implementation of an Actor Node for an Ambient Intelligence Testbed Considering Bed Temperature and Room Lighting: Its Effects on Human Sleeping Condition
   *Ryoichiro Obukata, Miralda Cuka, Donald Elmazi, Tetsuya Oda, Keita Matsuo, Leonard Barolli*
5. Demand Side Management Using Harmony Search Algorithm and BAT Algorithm
   *Mashab Farooqi, Muhammad Awais, Zain Ul Abdeen, Saadia Batool, Zunaira Amjad and Nadeem Javaid*
6. Energy Optimization in Home Energy Management System Using Artificial Fish Swarm Algorithm and Genetic Algorithm
   *Muhammad Talha, Muhammad Shahid Saeed, Ghulam Mohiuddin, Musa Ahmad, Muhammad Junaid Nazar and Nadeem Javaid*

**FINCoS-S1: Intelligent Networking Systems and Applications**

**Chair: Omar Khadeer Hussain, UNSW Canberra, Australia**

1. Research on Security and Interoperability in Middleware
   *Cheng Zhou, Mingwen Tuo, Mingfu Tuo, Xin Zhao, Lei Wang*
2. Home Energy Management using Enhanced Differential Evolution and Chicken Swarm Optimization Techniques
   *Muhammad Awais, Zain Ul Abadeen, Taimur Bilal, Zafar Faiz, Muhammad Junaid and Nadeem Javaid*
3. A Novel Meta-heuristic Technique for Energy Optimization in Smart Grid
   *Shaista Bibi, Mahnoor Khan, Bushra Abbasi, Muhammad Fawad, Ayesha Anjum Butt and Nadeem Javaid*
4. Privacy Preserving Data Mining on Big Data Computing Platform: Trends and Future
   *Gao Zhiqiang, Zhang Longjun*

## 13:00-14:00 Lunch Break

## 14:00-16:00 Parallel Sessions

### INCoS-S6: Intelligent Services for Networking and Collaborative Systems

### Chair: Hiroyoshi Miwa, Kwansei Gakuin University, Japan

1. Evacuation Guidance Method by using Augmented Reality and Digital Signage
   *Kazuyoshi Hikita and Hiroyoshi Miwa*

2. Evaluation of How Methods for Creating People Flow Data Affect Performance of Epidemic Routing
   *Yusuke Sakai and Akihiro Fujihara*

3. IBM Case Analysis by Servitization in IT Industry
   *Lukas Bickel, Natalia Kryvinska*

4. An Efficient Scheduling Using Meta Heuristic Algorithms for Home Demand-side Management in Smart Grid
   *Adnan Ishaq, Nasir Ayub, Arje Saba, Asad Ghafar, Basit Amin and Nadeem Javaid*

5. Successful Social Network Integration in an Academic Institution: Case Study of Opportunities
   *Monika Dávideková, Michal Greguš*

### IWCBS-S1: Collaborative Systems and Applications

### Chair: Natalia Kryvinksa, The University of Vienna, Austria

1. Pigeon Inspired Optimization And Enhanced Differential Evolution in Smart Grid using Critical Peak Pricing
   *Zunaira Amjad, Saadia Batool, Hafsa Arshad, Komal Parvez, Mashab Farooqi and Nadeem Javaid*

2. Energy Optimization Techniques for Demand-side Management in Smart Homes
   *Syeda Aimal, Komal Parveez, Arje Saba, Sadia Batool, Hafsa Arshad and Nadeem Javaid*

3. DSM using Fish Swarm Optimization and Harmony Search Algorithm using HEMS in Smart Grid
   *Shahzeb Haider, Hafiz Muhammad Faisal, Zenab Amin, Haq Nawaz, Kaleem Akram and Nadeem Javaid*

4. Extraction and Tracking of Scientific Topics by LDA
   *Yongjun Zhang, Jialin Ma, Zijian Wang, Bolun Chen*

5. Mining Unknown Network Protocol's Stealth Attack Behavior
   *Yan-Jing Hu*

## 19:00-21:00 Banquet Party

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**Saturday, August 26, 2017**

## INCoS-2017 Organizing Committee Meeting and Discussion

# Free Wi-Fi

Username: compsci17
Password: CS$conf2
Network: RU-Secure
Active: Aug 23 - 26

# Time Table

NBiS-2017 and INCoS-2017 Session Schedule
August 24 – 26, 2017
Ryerson University, Canada

| Thursday (August 24, 2017) | | ROOM 1 EPH 201 | ROOM 2 EPH 204 | ROOM 3 EPH 207 | ROOM 4 EPH 216 | ROOM 5 EPH 112 | ROOM 6 EPH 142 |
|---|---|---|---|---|---|---|---|
| Slot | Time | | | | | | |
| | 08:00 – 09:00 | Registration | | | | | |
| Session 1 | 09:00 – 10:30 | Opening Ceremony & NBiS-2017 and INCoS-2017 Keynote I (Room EPH 207 (Eric Palin Hall)) | | | | | |
| Coffee Break | 10:30 – 11:00 | Coffee Break | | | | | |
| Session 2 | 11:00 – 13:00 | NBiS S1 | NBiS S2 | WSSN S1 | TwCSec S1 | INCoS S1 | INCoS S2 |
| Lunch | 13:00 – 14:00 | Lunch Break | | | | | |
| Session 3 | 14:00 – 16:00 | NBiS S3 | NBiS S4 | WSSN S2 | TwCSec S2 | INCoS S3 | WIND S1 |
| Coffee Break | 16:00 – 16:30 | Coffee Break | | | | | |
| Session 4 | 16:30 – 18:30 | NBiS S5 | NBiS S6 | INWC S1 | ADPNA S1 | INCoS S4 | BDS S1 |
| Social Event | 19:00 – 21:00 | Welcome Reception Party | | | | | |

| Friday (August 25, 2017) | | ROOM 1 EPH 201 | ROOM 2 EPH 204 | ROOM 3 EPH 207 | ROOM 4 EPH 216 | ROOM 5 EPH 112 | ROOM 6 EPH 142 |
|---|---|---|---|---|---|---|---|
| Slot | Time | | | | | | |
| | 08:00 – 09:00 | Registration | | | | | |
| Session 1 | 09:00 – 10:30 | NBiS-2017 and INCoS-2017 Keynote II (Room EPH 207 (Eric Palin Hall)) | | | | | |
| Coffee Break | 10:30 – 11:00 | Coffee Break | | | | | |
| Session 2 | 11:00 – 13:00 | NBiS S7 | NBiS S8 | INVITE S1 | DEMoC S1 | INCoS S5 | FINCoS S1 |
| Lunch | 13:00 – 14:00 | Lunch Break | | | | | |
| Session 3 | 14:00 – 16:00 | NBiS S9 | ISSE S1 | INVITE S2 | HETNET S1 | INCoS S6 | IWCBS S1 |
| Social Event | 19:00 – 21:00 | Banquet Party | | | | | |