

2015 IEEE 14th Canadian Workshop on Information Theory (CWIT 2015)

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Program

Welcoming Reception

Plenary Speaker: Monique Morrow, CTO CISCO Services

The Making of a 21st Century Technology Leader

Coffee Break

Invited Speakers Session I (1): Milica Stojanovic, Northeastern University, USA

Underwater Wireless Communication: An Overview of Challenges and Recent Results

Invited Speakers Session I (2): Sarah Katie Wilson, Santa Clara University, USA

Shine a Light: Optical Wireless Communications

Invited Speakers Session I (3): Alex Alvarado, University College, London, UK

Coding and Modulation for Optical Communication Systems

Lunch Break

Coding Theory

Higher dimensional varieties in coding

Hamid Usefi (Memorial University, Canada); Ian Blake (University of British Columbia, Canada);
Kumar Murty (GANITA lab, Canada)
pp. 1-4

Non-Binary Distributed Arithmetic Coding

Ziyang Wang, Yongyi Mao and Iluju Kiringa (University of Ottawa, Canada)
pp. 5-8

Construction and Decoding of Generalized Skew-Evaluation Codes

Siyu Liu (University of Toronto, Canada); Felice Manganiello (Clemson University, USA); Frank
R. Kschischang (University of Toronto, Canada)
pp. 9-13

A Fast Displacement-Based Peterson Decoder

Christian Senger and Frank R. Kschischang (University of Toronto, Canada)
pp. 14-17

Locality-aware fountain codes for massive distributed storage systems

Toritseju Okpotse (Queens University, Canada); Shahram Yousefi (Queen's University, Canada)
pp. 18-21

Afternoon Coffee Break

Information Theory

Upper Bound on the Capacity of the Nonlinear Schrödinger Channel

Mansoor Isvand Yousefi (Technical University of Munich, Canada); Gerhard Kramer (Technische Universität München, Germany); Frank R. Kschischang (University of Toronto, Canada)
pp. 22-26

On Maximal Correlation, Mutual Information and Data Privacy

Shahab Asoodeh, Fady Alajaji and Tamas Linder (Queen's University, Canada)
pp. 27-31

Characterization of Optimal Input Distributions for Gaussian-Mixture Noise Channels

Hung Vu (McGill University, Canada); Nghi H Tran (University of Akron, USA); M. Cenk Gursoy (Syracuse University, USA); Tho Le-Ngoc (McGill University, Canada); Subramaniya Hariharan (University of Akron, USA)
pp. 32-35

On the Secrecy Capacity of Fading Gaussian Wiretap Channel

Sanjay Karmakar and Anirban Ghosh (North Dakota State University, USA)
pp. 36-40

Enhancing Secrecy of the Gaussian Wiretap Channel

Mohamed Haj Taieb and Jean-Yves Chouinard (Laval University, Canada)
pp. 41-45

Plenary Speaker: Moe Win, Massachusetts Institute of Technology

Fundamental Limits of Network Localization and Navigation

Coffee Break

Invited Papers Session

On Bounds for the Cognitive Multiple Access Z-Interference Channel

Fernando Reátegui (University of Surrey, United Kingdom); Muhammad Zeeshan Shakir (Texas A&M University at Qatar (TAMUQ), Qatar); Muhammad Ali Imran and Rahim Tafazolli (University of Surrey, United Kingdom); Khalid A. Qaraqe (Texas A&M University at Qatar, USA); Telex M. N. Ngatched (Memorial University of Newfoundland, Canada)
pp. 46-49

Signal Detection for Ambient Backscatter System with Multiple Receiving Antennas

Zhen Ma, Tengchan Zeng and Gongpu Wang (Beijing Jiaotong University, P.R. China); Feifei Gao (Tsinghua University, P.R. China)

pp. 50-53

Effect of Interference of Full-Duplex Transmissions in Underlay Device-to-Device Communication

Samad Ali and Nandana Rajatheva (University of Oulu, Finland); Matti Latva-aho (UoOulu, Finland)

pp. 54-57

Technologies for Future Broadband Wireless Evolution

Doru Calin (Bell Labs, Alcatel-Lucent, USA)

pp. 58-61

Lunch Break**Invited Speakers Session II (1): Shu Lin, University of California, Davis**

A Broader View of the Superposition Construction of LDPC Codes

Invited Speakers Session II (2): Sofiène Affes, INRS, Canada

Efficient Distributed Collaborative Beamforming Designs for Real-World Applications

Invited Speakers Session II (3): Andrew Eckford, York University, Canada

Information Theory in Intercellular Signal Transduction

Coffee Break**Industry-Academia Invited Panel: The Roadmap for Open innovation**

Moderator: Ray Gosine, Memorial University, Canada. Academia: Vijay Bhargava, UBC, Canada; Milica Stojanovic, Northeastern University, USA; Katie Wilson, Santa Clara University, USA. Industry: Dragos Cristea, Ciena, Canada; Doru Calin, Bell Labs, Alcatel-Lucent, USA; Monique Morrow, Cisco Services; Mark Newell, Altera NL, Canada.

Workshop Banquet**Plenary Speaker: Vahid Tarokh, Harvard University**

Some Applications of The Theorem of Fisher-Tippett-Gnedenko

Coffee Break

Applications of Coding and Information Theory (Poster 1)

Using Bit Recycling to Reduce the Redundancy in Plurally Parsable Dictionaries

Ahmad Al-rababa'a and Danny Dubé (Université Laval, Canada)

pp. 62-65

Permutation Entropy for Signal Analysis: A Case Study of Synthetic Aperture Radar Imagery

Khalid El-Darymli (Northern Radar Inc., Canada); Eric Gill (Memorial University, Canada); Cecilia R Moloney (Memorial University of Newfoundland, Canada); Peter McGuire (C-Core, Canada); Desmond Power (C-CORE, Canada)

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Database Query Privacy using Homomorphic Encryptions

Sudharaka Palamakumbura and Hamid Usefi (Memorial University, Canada)

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Smart Home Automation System for Intrusion Detection

Danish A. Chowdhry, Raman Paranjape and Paul Laforge (University of Regina, Canada)

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Overlapped Fountain Coding for Delay-Constrained Priority-Based Broadcast Applications

Khaled F. Hayajneh and Shahram Yousefi (Queen's University, Canada)

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Uplink Scheduling in Multi-Cell MU-MIMO Systems with ZF Post-processing and Diversity Combining

Aasem N Alyahya and Jacek Ilow (Dalhousie University, Canada)

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Approximate secrecy capacity region of an asymmetric MAC wiretap channel within 1/2 bits

Sanjay Karmakar and Anirban Ghosh (North Dakota State University, USA)

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Digital Signal Processing and Its Applications

Wideband Localization via Range Likelihood based on Reduced Dataset

Stefania Bartoletti (ENDIF University of Ferrara, Italy); Wenhan Dai (Massachusetts Institute of Technology, USA); Andrea Conti (ENDIF University of Ferrara, WiLAB University of Bologna, Italy); Moe Win (Massachusetts Institute of Technology, USA)

pp. 93-96

A Novel Non-Parametric Method for Blind Identification of STBC Codes

Mostafa Mohammadkarimi and Octavia A. Dobre (Memorial University of Newfoundland, Canada)

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Spatial Stream Scheduling in Uplink Multiuser MIMO Systems with Zero-Forcing Post-processing

Aasem N Alyahya and Jacek Ilow (Dalhousie University, Canada)

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Cognitive Radios for Aeronautical Telemetry

Michael Rice and Jacob Frogget (Brigham Young University, USA)

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Adaptive Block-Length Partitioned Viterbi Algorithm

Mohamed Haroun (Laval University, Canada); Sebastien Roy (University of Sherbrooke, Canada)

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Lunch Break

Applications of Coding and Information Theory (Poster 2)

One Example of a non-Abelian Group Code over AWGN Channels

Jorge P Arpasi (University of Pampa - UNIPAMPA, Brazil)

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Ocean Current Measurement Using Acoustic Sensor Network 'Challenges, Simulation, Deployment'

Samareh Attarsharghi (Memorial University of Newfoundland, Canada); Vlastimil Masek (Memorial University, Canada)

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Capacity of the Millimeter Wave Underground Mine Channel

Mohamad El Khaled (Laval, Canada); Paul Fortier (Laval University, Canada); Mohamed Lassaad Ammari (Université Laval, Canada); Mohamed Haj Taieb (Laval University, Canada)

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RF-Pilot Phase Noise Compensation for Long-Haul Coherent Optical OFDM Systems

Jingwen Zhu, Oluyemi Omomukuyo, Ramachandran Venkatesan, Cheng Li and Octavia A. Dobre (Memorial University of Newfoundland, Canada)

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Single-Source Two-Terminal Multicast Networks with Overlapping Demands Over the Binary Erasure Channel

Arghavan Modiri and Shahram Yousefi (Queen's University, Canada)

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A New Reliability-Based Incremental Redundancy Hybrid ARQ Scheme Using LDPC Codes

Hamid Saber and Ian D. Marsland (Carleton University, Canada)

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Communication Systems

On the Mutual Information of the VLC Channel in the presence of External Ambient Lighting

Stefano Pergoloni (Sapienza University of Rome, Italy); Mauro Biagi, Stefania Colonnese, Gaetano Scarano and Roberto Cusani (Università La Sapienza di Roma, Italy)
pp. 139-142

Outage Capacity and Throughput Analysis of Multiuser FSO Systems

Sasan Zhalehpour and Murat Uysal (Ozyegin University, Turkey); Octavia A. Dobre and Telex M. N. Ngatched (Memorial University of Newfoundland, Canada)
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Optimal CDMA Signatures For Correlated Sources With a Multi-Antenna Receiver

Chathura Illangakoon and Pradeepa Yahampath (University of Manitoba, Canada)
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Power Allocation for Distributed Estimation in Sensor Networks with Semi-Orthogonal MAC

Jian Su and Ha Nguyen (University of Saskatchewan, Canada); Hoang D. Tuan (University of Technology, Sydney, Australia)
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Communication of Dependent Messages over Degraded Compound Channels

Zhong Cheng and Yongyi Mao (University of Ottawa, Canada); Terence H. Chan (University of South Australia, Australia)
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Coffee Break

Applications of Coding and Information Theory (Poster 3)

Empirical Support for the High-Density Subset Sum Decision Threshold

Thomas O'Neil and Travis Desell (University of North Dakota, USA)
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On a Generalised Typicality with Respect to General Probability Distributions

Wuling Liu and Xiaoli Chu (University of Sheffield, United Kingdom); Jie Zhang (University of Sheffield, Dept. of Electronic and Electrical Engineering, United Kingdom)
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A Novel Image Quality Assessment Metric using Singular Value Decomposition

Syed Salman Ali (University of Regina, Canada)
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Adaptive erasure code based distributed storage systems

Brijesh Kumar Rai (IIT Guwahati, India)
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Neural Network Associative Memories with Local Coding

Asieh Abolpour Mofrad (University of Bergen, Norway); Zahra Ferdosi (Amirkabir, Iran); Matthew Parker (University of Bergen, Norway); Mohammad Hesam Tadayon (Iran Telecommunication Research Center, Iran)
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Relay-Assisted Communication

A DoF Analysis of Compress-and-Forward in MIMO Gaussian Relay Channel with Correlated Noises

Seyedarvin Ayoughi and Wei Yu (University of Toronto, Canada)
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Buffer-Aided Relaying with Discrete Transmission Rates

Wayan Wicke (Friedrich-Alexander University, Germany); Nikola Zlatanov (University of British Columbia, Canada); Vahid Jamali (Friedrich-Alexander-University Erlangen-Nürnberg, Germany); Robert Schober (University of British Columbia, Canada)
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Gaussian Multiple-Access Relay Channels with Non-Causal Side Information at the Transmitters

Assad Sahebalam and Soosan Beheshti (Ryerson University, Canada)
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Improving Transmission Rate for the Two-Way Relay Channel by User Cooperation

Ahmad Abu Al Haija (McGill University, Canada); Mai Vu (Tufts University, USA)
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Improved Training and Training Power Allocation Schemes for Multi-Relay AF Networks

Dan Wang (Henan University of Science and Technology, P.R. China); Yindi Jing (University of Alberta, Canada)
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