University of Victoria

PACRIM 2019

IEEE Advancing Technology for Humanity

Wednesday August 21, 2019			
08:30 – 09:20	**Registration and Nutrition Break (ECS Lobby)**		
09:20 – 09:30	**Opening Ceremony and Greetings**		
09:30 – 10:30	**Keynote 1 (ECS-125): Prof. Fumiyuki Adachi, IEEE Fellow, Tohoku University, "Wireless Evolution Towards 5G and Distributed MIMO"**		
10:30 – 10:45	**Nutrition Break**		
TRACK	**W11 (ECS-116)**	**W12 (ECS-108)**	**W13 (ECS-104)**
Session Title	**Comm S1 (4) 5G Networks**	**Comp S1 (4) Computer & Hardware 1**	**SP S1 (5) Signal Analysis and Applications**
Session Chair	**Prof. Raman Paranjape, University of Regina**	**Prof. Nikitas Dimopoulos, University of Victoria**	**Prof. Yong Jin, Tokyo Institute of Technology**
10:45 – 11:05	Increasing Spectrum Sharing Opportunities by Radio Link Design in an Urban Environment	Does the ISA Really Matter? A Simulation Based Investigation	Real-Time Analog Time-Frequency Signal Analysis
Author(s)	*Nobuo Suzuki, Tatsuya Yoshioka, Toshiyuki Maeyama*	*Ming Ling, Xin Xu, Yushen Gu, Zhihua Pan*	*Jose Azana, Saikrishna Reddy Konatham, Reza Maram, Hugues Guillet de Chatellus*
11:05 – 11:25	Capacity Optimization of an Actual HetNet Deployment with Applications to 5G	Accelerating the Analytical Modeling of Memory Level Parallelism by the Probability Analysis	Fast Nonnegative Matrix Factorization Using Nested ADMM Iterations
Author(s)	*Diego Castro-Hernandez, Amna Feroz, Raman Paranjape*	*Yunhao Yan, Ming Ling*	*Wu-Sheng Lu*
11:25 – 11:45	On the Ergodic Secrecy Rate of Massive MIMO Transmission with Partial Legitimate User CSI	HDL Code Optimizations: Impact on Hardware Implementations and CAD Tools	Exploiting External Interference for Clock Synchronization
Author(s)	*Tingnan Bao, Hong-Chuan Yang, Mazen Omar Hasna*	*S. Navid Shahrouzi, Darshika G Perera*	*Aidan D. Bush, Nicholas M. Boers, Jakob Bowering*
11:45 – 12:05	Cross-tier Interference Mitigation in a Cellular System with Small Moving Cells	A Novel ATPG Method to Increase Activation Probability of Hardware Trojan	Generation of Coherent Signals for the Verification of Signal Processing Algorithms in Radio Astronomy
Author(s)	*Yong-suk Byun, Hyoung-Keon Kim, Yong-Hwan Lee*	*Tianliang Xu, Chenxu Wang, Shiyao Zhao, Zhiquan Zhou, Min Luo, Xinsheng Wang*	*Thushara Gunaratne*
12:05 – 12:25			Experimental Comparison of the Effect of the Structure on MZI Fiber Gas Sensor Performance
Author(s)			*Kaveh Nazeri, Colin Bradley, Vahid Ahsani, Farid Ahmed, Hang-Eun Joe, Martin Jun*
12:25 – 13:30	**Lunch (ECS Lobby)**		
TRACK	**W21 (ECS-116)**	**W22 (ECS-108)**	**W23 (ECS-104)**
Session Title	**Comm S2 (5) Optical and Wireless Communications**	**Comp S2 (5) AI & Machine Learning**	**SP S2 (5) Machine Learning for Signal Processing**
Session Chair	**Mr. Haminder Singh, Carleton University**	**Dr. Tianming Wei, University of Victoria**	**Prof. Tao Lu, University of Victoria**

13:30 – 13:50	High Performance Implementation of Nested Array Beamformer for Wideband Radar Applications	Functionally-Predefined Kernel: a Way to Reduce CNN Computation	Hierarchical Meta-learning Models with Deep Neural Networks for Spectrum Assignment
Author(s)	*Mohammed Shoukry, Fayez Gebali, Panajotis Agathoklis*	*Yuta Inouchi, Hayato Yamaki, Shinobu Miwa, Tomoaki Tsumura*	*Humphrey Rutagemwa, Kareem E. Baddour, Bo Rong*
13:50 – 14:10	WisDriver:A WiFi and Smartphone Sensing System for Safely Driving	Detection of Partial Task Graph Using Deep Learning	Basic Investigation of Sign Language Motion Classification by Feature Extraction using Pre-trained Network Models
Author(s)	*Qingpei Li, Meng Li, Xin Ke, Weixing Kong, Lei Yang, Zhanyong Tang, Xiaojiang Chen, Dingyi Fang*	*Taiga Tamura, Munenori Kai*	*Hiroshi Tanaka, Kaito Kawaguchi, Zhizhong Wang, Eiji Ota, Hiromitsu Nishimura*
14:10 – 14:30	Dynamic A-MPDU Adaptation Method for Airtime Fairness in Channel Bonding-Ready WLANs	A Trial Experiment of Deep Learning For Task Scheduling	SurfCNN: A Descriptor Enhanced Convolutional Neural Network
Author(s)	*Yusuke Shimizu, Daiki Nobayashi, Hitomi Tamura, Kazuya Tsukamoto*	*Jumpei Kono, Munenori Kai*	*Ahmed M. Elmoogy, Xiaodai Dong,Tao Lu, Robert Westendorp, Kishore Reddy*
14:30– 14:50	Analysis of Lightwave System Using Negative Dispersion Fiber and High Speed Optical Telemetry	Phoneme Sequence Extraction of Learner's Pronunciation Errors for Foreign Language Learning	Learning from an Imbalanced and Limited Dataset and an Application to Medical Imaging
Author(s)	*Harminder Singh, Sreeraman Rajan, Changcheng Huang, Gauravdeep Shami, Marc Lyonnais, Dmitri Fedorov, Rodney Wilson*	*Kohei Kamimura, Kosuke Takano*	*Xiaoli Qin, Francis M. Bui, Ha Nguyen*
14:50 – 15:10	INT-SDN: Evaluation of Various P4 Parameters Using Optical Telemetry Having Reconfigurable Data Plane on 40 Gbps Line Rate	Dynamic Games in Federated Learning Training Service Market	Mobile User-Activity Prediction Utilizing LSTM Recurrent Neural Network
Author(s)	*Harminder Singh, Changcheng Huang, Mathieu Sicard-Gagne, Gauravdeep Shami, Marc Lyonnais, Dmitri Fedorov, Rodney Wilson*	*Yuze Zou, Shaohan Feng, Jing Xu, Shimin Gong, Dusit Niyato, Wenqing Cheng*	*Ramin Sharifi, Mahdiyar Molahasani Majdabadi, Vahid TabaTaba Vakili*
15:10 – 15:40	**Nutrition Break (ECS Lobby)**		
TRACK	**W31 (ECS-116)**	**W32 (ECS-108)**	**W33 (ECS-104)**
Session Title	**Comm S3 (4) Internet of Things**	**Comp S3 (5) Cloud Computing & Computing Applications**	**SP S3 (5) Audio, Image, and Video Processing**
Session Chair	**Prof. Francis Bui, University of Saskatchewan**	**Prof. Tao Lu, University of Victoria**	**Ms. Ying Xiong, University of Alberta**
15:40 – 16:00	User-Preference-Aware Private-Preserving Average Consensus	Costs and Benefits of Atmospheric Correction in the "Clouds"	CURE Dataset: Ladder Networks for Audio Event Classification
Author(s)	*Zhenping Chen, Lin Cai*	*Julien Godding, Bing Gao, Derek Jacoby, Yvonne Coady*	*Harishchandra Dubey, Dimitra Emmanouilidou, Ivan J. Tashev*
16:00 – 16:20	Internet of Farming: Channel Characterization of Organic Communication Channels	An Intelligent Resource Selection Framework for Cloud Computing Environments	A Highly-Effective Approach for Generating Delaunay Mesh Models of RGB Color Images
Author(s)	*Aaron Roopnarine, Sean Rocke*	*Gamal A. Ebrahim*	*Jun Luo, Michael D. Adams*
16:20 – 16:40	Development of the Edge Computing Platform with Dynamic Modular Configuration for an IoT Platform	Geospatial Computing Collaborations	Detection And Localization Of Splicing Attacks On Videos Using Block Correlation
Author(s)	*Tohru Kondo, Hidenobu Watanabe, Kai Kobayashi, Hayato Kimura, Toshihiro Ohigashi*	*Derek Jacoby, Andy Wynden, Bing Gao, Fernanda Giannini, Maycira Costa, Yvonne Coady*	*Ernesto Aparicio-Díaz, René Cumplido, Claudia Feregrino-Uribe, Lázaro Bustio-Martínez*
16:40 – 17:00	Conceptual Experiment of Geolocation-Aware IoT Data Dissemination Model	Implementation of Oil-Based Hydraulic Artificial Muscles in a Bio-Inspired Configuration	Development of a Phased-array Ionospheric Imaging System
Author(s)	*Kazuya Yuge, Yuzo Taenaka, Daiki Nobayashi, Takeshi Ikenaga*	*Arman Nikkhah, Colin Bradley*	*Nicholas S Bruce, Stephen Harrison, Rodney Herring, Peter F. Driessen*
17:00 – 17:20		Evaluating Multi-Agent System Security using Goal/Question/Metric Approach and Fuzzy Logic	Video Super-Resolution with Compensation in Feature Extraction
Author(s)		*Sabah Darweesh, Gamal A. Ebrahim, Hassan Bedour*	*Yang Zhou, Lei Chen, Jiying Zhao*
18:00 – 21:00	**Reception (Upper Lounge, Student Union Building)**		

Thursday August 22, 2019			
9:00 - 9:30	**Registration and Nutrition Break (ECS Lobby)**		
9:30-10:30	**Keynote 2 (ECS-125): Gary Perkins, Chief Information Security Officer (CISO) for the Province of British Columbia, "Cybersecurity Threat Landscape"**		
10:30-10:45	**Nutrition Break (ECS Lobby)**		
TRACK	**T11 (ECS-116)**	**T12 (ECS-108)**	**T13 (ECS-104)**
Session Title	**Comm S4 (5) Communications Networks & Applications**	**Comp S4 (4) Algorithms and Programming**	**SP S4 (5) Signal Processing for Communications**
Session Chair	**Prof. Francis Bui, University of Saskatchewan**	**Prof. Daler Rakhmatov, University of Victoria**	**Dr. Chen Liu, University of Victoria**
10:45-11:05	Adaptive Server and Path Switching Scheme for Content Delivery Network	Fast Intra Size Decision and Mode Decision Algorithm for HEVC Intra Coding	Optimizing Transmission Rate in NOMA via Block Diagonalization Beamforming and Power Allocation
Author(s)	*Hiroyuki Nishimuta, Daiki Nobayashi, Takeshi Ikenaga*	*Yanling Xu, Chenfeng Yu, Yueqiang lin*	*Sara Norouzi, Alireza Morsali, Benoit Champagne*
11:05-11:25	Dynamic Topology Inference via External Observation for Multi-Robot Formation Control	Fixed Polarity Pascal Transforms with Symbolic Computer Algebra Applications	Design of Optimal Finite Alphabet NOMA Scheme for Uplink Noncoherent Massive MIMO Channels
Author(s)	*Cong Liu, Jianping He, Shanying Zhu, Cailian Chen*	*Kaitlin Smith, Mitchell A Thornton*	*Yang Yu, Peiyao Chen, Jian-Kang Zhang*
11:25-11:45	A Call Admission Control Maximizing the Number of General Calls from Non-disaster Area Considering the Priority Calls	A Watermarking Technique Based on File Page Objects for PDF	Design of Optimal Unitary Constellation with Noncoherent ML Receiver
Author(s)	*Tatsuya Kawase, Sumiko Miyata, Ken-ichi Baba, Katsunori Yamaoka*	*Muhammad Munwar Iqbal, Umair Khadam, Ki Jun Han, Muhammad Asif Habib*	*Jina Zhen, Shuangzhi Li, Jian-Kang Zhang, Max Wong*
11:45-12:05	Path Switching Schedulers for MPTCP Streaming Video	A Hybrid Method for Spectral Translation Equivalent Boolean Functions	Timing Synchronization for Upstream Cable OFDMA Signals
Author(s)	*Shinichi Nagayama, Dirceu Cavendish, Daiki Nobayashi, Takeshi Ikenaga*	*Mathias Soeken, Eleonora Testa, Michael Miller*	*Yayi Xiao, Brian Berscheid, Ha Nguyen, Eric Salt*
12:05-12:25	SDN/NFV-based M-CORD for Achieving Scalability in Deploying NB-IoT Gateways		Development and Evaluation of an OFDM Radar in a FPGA
Author(s)	*Do Sinh, Luong Vy Le, Bao-Shuh Lin, Li-Ping Tung*		*Juliana Barros Carvalho, Manuel Violas, Daniel Castanheira, Atílio Gameiro*
12:25-13:30	**Lunch (ECS Lobby)**		
13:30-15:10	**Panel Session (ECS-125): Emerging Internet-of-Things Technologies (Chair: Lin Cai, Panelists: Stevel Hall, Jianping He, Rose Qingyang Hu, Chris Ng, Humphrey Rutagemwa)**		
15:10-15:40	**Nutrition Break (ECS Lobby)**		
TRACK	**T21 (ECS-116)**	**T22 (ECS-108)**	**T23 (ECS-104)**
Session Title	**Comm S5 (5) Transmission & Detection**	**Comp S5 (5) Data Analysis**	**SP S5 (5) Detection and Recognition**
Session Chair	**Prof. Brian Berscheid, University of Saskatchewan**	**Dr. Tianming Wei, University of Victoria**	**Prof. Jian-Kang Zhang, McMaster University**
15:40 – 16:00	Discrete Phase Shift Design for Practical Large Intelligent Surface Communication	A Recommendation System of Sightseeing Places based on User's Behavior of Taking and Editing Photos	Abnormality Detection with Renyi Divergence for Univariate Gaussian Data
Author(s)	*Jindan Xu, Wei Xu, Lee Swindlehurst*	*Eriko Shibamoto, Chalisa Kittirojrattana, Chawan Koopipat, Aran Hansuebsai, Kosuke Takano*	*Ying Xiong, Yindi Jing, Tongwen Chen*

16:00 – 16:20	Adaptive Clock and Data Recovery for Asymmetric Triangular Frequency Modulation Profile	Mining Retail Telecommunication Data to Predict Profitability	Anomaly Detection by Monitoring Unintended DNS Traffic on Wireless Network
Author(s)	*Ahmed M. Zaki*	*Fariha Naz, Fred Popowich*	*Yong Jin, Masahiko Tomoishi, Nariyoshi Yamai*
16:20 – 16:40	Secrecy Energy Efficient Beamforming for Satellite-Terrestrial Coordinated Communication Systems	Graph Regularized Non-negative Matrix Factorization with Long-tail Constraint	LSTM for SCADA Intrusion Detection
Author(s)	*Pu Chen, Jian Ouyang, Wei-Ping Zhu, Naofal Al-Dhahir*	*Lu You, Rui Liu, He Zhang, Z.m Shan*	*Jun Gao, Luyun Gan, Fabiola Buschendorf, Liao Zhang, Hua Liu, Peixue Li, Xiaodai Dong, Tao Lu*
16:40 – 17:00	Deep Learning Aided Signal Detection in OFDM Systems with Time-Varying Channels	TAVO: A Tree-like Analytical View for OLAP	Are You Sitting Right?-Sitting Posture Recognition Using RF Signals
Author(s)	*Rugui Yao, Shengyao Wang, Xiaoya Zuo, Juan XU, Nan Qi*	*Benyuan Zou, Jinguo You, Jiaman Ding, Hao Sun*	*Lin Feng, Ziyi Li, Chen Liu*
17:00 – 17:20	Receiver Design and SER Analysis of Massive MIMO Uplink With Mixed-Resolution ADCs	Data Mining Hardware Acceleration for Object Detection	Fake News Detection on Social Media: A Systematic Survey
Author(s)	*Ke Ma, Yindi Jing*	*Narges Attarmoghaddam, Kin Fun Li*	*Mohamed Elhaddad, Kin Fun Li, Fayez Gebali*
18:30-22:00	**Banquet (Terrace Ballroom, Inn at Laurel Point)**		

Friday August 23, 2019			
9:00 - 9:30	**Registration and Nutrition Break (ECS Lobby)**		
TRACK	**F11 (ECS-116)**	**F12 (ECS-108)**	
Session Title	**Comm S6 (4) Wireless Networks**	**Comp S6 (4) Computer Architecture & Hardware 2**	
Session Chair	**Mr. Lei Yang, University of Alberta**	**Dr. Riham Altawy, University of Victoria**	
9:30-9:50	Conditional Training Based GM and GM-OPELM Data Fusion Schemes in Wireless Sensor Networks	FPGA-based Implementation of HOG Algorithm: Techniques and Challenges	
Author(s)	*Lei Yang, Qing Zhao, Yindi Jing*	*Sina Ghaffari, Parastoo Soleimani, Kin Fun Li, David W. Capson*	
9:50-10:10	IP-based Space Air Ground Information Network for Air Traffic Control Communication	Distributed Search of Logical Expressions in DHT Storage Systems	
Author(s)	*Abid Murtaza, Syed Jahanzeb Hussain Pirzada, Fazeelat Fatima, Tongge Xu, Jianwei Liu*	*Soheil Ghanbari, Nasrin Amiri, Behrad Mahboobi*	
10:10-10:30	Joint Channel Assignment and Multicast Routing in Multi-Channel Multi-Radio Wireless Mesh Networks Based on Q-Learning	A Dynamic Power reduction Methodology based on Reducing Output Transition Rate	
Author(s)	*Amin Erfanian Araghi, Behrad Mahboobi*	*Moaz Mostafa, Ahmed M. Zaki, M. Watheq El-Kharashi, Mohamed Dessouky*	
10:30-10:50	Lightweight Key Establishment for WSNs	Programmability and Performance of New Global-View Programming API for Multi-Node and Multi-Core Processing	
Author(s)	*Carlos Andres Lara-Nino, Miguel Morales-Sandoval, Arturo Diaz-Perez*	*Hiroko Midorikawa, Yugo Sakaguchi*	