Graduate Symposium 2018
Department of Electrical and Computer Engineering May 8 & 9, 2018

May 8, 2018	9:00 – 10:40AM	SEB 2200

Power Systems Session 1

Session Chair: TBA Judges:
TBA

9:00-9:20: New Methods for Monitoring Neutral Grounding Resistors, *Rahim Jafari*

9:20-9:40: Field Demonstration of application of Novel Smart PV Inverter Control (PVSTATCOM) for stabilizing a nearby Critical Induction Motor Load, *Sibin Mohan*

9:40-10:00: Challenges with Severe Accident Monitoring in Nuclear Power Plants, *Madison McCarthy*

10:00-10:20: Subsynchronous Resonance Mitigation in Induction Generator based Wind Farms with a New Control of PV Solar Farm as STATCOM (PV-STATCOM), *Reza Salehi Sharafdarkolaee*

10:20-10:40: Protection of Inverter-Dominated AC Microgrids, *Houman Lahiji*

May 8, 2018	9:00 -10:40AM	SEB 3109

Software Engineering Session 1

Session Chair: TBA
Judges: TBA

9:00-9:20: Leveraging NFV and SDN Towards Quality-Driven Mobile Core Network, *Hassan Hawilo*

9:20-9:40: Challenges of Machine Learning with Big Data, *Alexandra L'Heureux*

9:40-10:00: Supporting Preventive Maintenance through Anomaly Detection, *Willamos Silva*

10:00-10:20: Big Data for Traffic Engineering in SDN, *Wander Queiroz*

10:20-10:40: Novelty Detection in Data Streams, Jose Alves

Graduate Symposium 2018
Department of Electrical and Computer Engineering May 8 & 9, 2018

May 8, 2018	1:00-2:20PM	SEB 3109

Software Engineering Session 2

Session Chair: TBA
Judges: TBA

1:00-1:20: User Performance Evaluation in Surgical Simulators as a Software as a Service, *Justin Mackenzie*

1:20-1:40: Dimensionality Reduction with Ensemble Classifier for Network Intrusion Detection. *Fadi Salo*

1:40-2:00: Finding Ideal Gabor Filter Initializations in the First Layers of Convolutional Neural Networks, *Long Pham*

2:00-2:20: Simulator for Measuring User Performance in Neuromuscular Injection Targeting Tasks, *Justin Mackenzie*

May 8, 2018	9:00-10:40AM	SEB 2202

Robotics and Control Session 1

Session Chair: TBA
Judges: TBA

9:00-9:20: Automatic geological mapping with multi-spectral image classification, *Lei Shu*

9:20-9:40: Stochastic Attitude Observer, *Hashim Mohamed*

9:40-10:00: Electrophysiological Signal Processing for Online Localization of Subthalamic Nucleus during Deep Brain Stimulation Surgery, *Mahsa Khosravi*

10:00-10:20: Signal Identification Based on Internal Model Principle in Discrete Time, *Jie Chen*

10:20-10:40: Distributed Control Unknown Nonlinear Networked Systems with Prescribed Performance, *Hashim Mohamed*

May 9, 2018	9:00-10:40AM	SEB 2200

Robotics and Control Session 2

Session Chair: TBA Judges:
TBA

9:00-9:20: Globally Exponentially Stable Nonlinear Observers for 3D Inertial Navigation, *Miaomiao Wang*

9:20-9:40: Hyperspectral Image Classification Based on PCDA and Deep Learning, *Hadis Madani*

Graduate Symposium 2018
Department of Electrical and Computer Engineering May 8 & 9, 2018

9:40-10:00: Development of Intrinsically Safe Robot with 5 Degrees of Freedom, *Sergey Pisetskiy*

10:00-10:20: Generalization of Average and Max Pooling, *Justin Szoke-Sieswerda*

10:20-10:40: Automatic and Real-Time Rock Image Classification Using Convolutional Neural Networks, *Alexis Pascual*

May 8, 2018	1:00-2:00PM	SEB 2202

Biomedical Engineering Session 1
Session Chair: TBA Judges:
TBA

1:00-1:20: Development of an EMG-based muscle health model for elbow trauma patients, *Emma Farago*

1:20-1:40: Portable Measurement and Analysis of Patients with Knee Osteoarthritis. *Riley Bloomfield*

1:40-2:00: Micro-CT to CT Atlas-Based Segmentation of the Facial Nerve for Surgical Simulation, *Bradley Gare*

May 8, 2018	2:30-3:30PM	SEB 2202

Biomedical Engineering Session 2
Session Chair: TBA
Judges: TBA

2:30-2:50: Bone Thickness Estimation Software for Surgical Planning of a Bone-Conduction Implant, *Carlos Salgado*

2:50-3:10: Automated Digital Modeling of the Sigmoid Sinus from 3D Micro-CT Images for Surgical Training, *Daniel Allen*

3:10-3:30: Objective Assessment of Companding Architecture for Assistive Hearing Devices, *Farid Moshgelani*

May 8, 2016	1:00-2:20PM	SEB 2200

Communication Systems and Data Networking Session 1
Session Chair: TBA
Judges: TBA

Graduate Symposium 2018
Department of Electrical and Computer Engineering May 8 & 9, 2018

1:00-1:20: Delay-Tolerant Resource Allocation for D2D Communication Using Matching Theory, *Hessam Yousefi*

1:20-1:40: Reducing energy consumption of multimedia applications in D2D networks, *Fuad Shamieh*

1:40-2:00: Multiple Attributes-based Fuzzy Physical Layer Authentication: A Hierarchical Approach, *He Fang*

2:00-2:20: Antenna Grouping in Dual-Polarized Generalized Spatial Modulation, *Golara Zafari*

May 8, 2018	2:30-4:10PM	SEB 2200

Communication Systems and Data Networking Session 2
Session Chair: TBA
Judges: TBA

2:30-2:50: Device Grouping for Efficient Channel Access in IEEE 802.11ah based IoT Networks, *Sabin Bhandari*

2:50-3:10: Power allocation multichannel game against jammer with changing strategy, *Gleb Dubosarskii*

3:10-3:30: Adaptive Beamforming based Inband Fronthaul for Cost-Effective Virtual Small Cell in 5G Networks, *Yanan Liu*

3:30-3:50: Nested Markov Chain - A Novel Approach to Model Network-Induced Constraints in Networked Control Systems, *Pengyi Jia*

3:50-4:10: Maximization of Rate and EE with Interference Management in SWIPT in Wireless Networks, *Samantha Sriyananda*

May 9, 2018	9:00-10:50AM	SEB 1200

Communication Systems and Data Networking Session 3
Session Chair: TBD
Judges: TBD

9:00-9:20: A Low Overhead Angle-based Beamforming Using Multi-Pattern Codebooks for mmWave Massive MIMO Systems, *Yuyan Zhao*

9:20-9:40: Spectral Efficiency Framework for OFDM Systems with QoS Contraints, *Anas Saci*

Graduate Symposium 2018
Department of Electrical and Computer Engineering May 8 & 9, 2018

9:40-10:00: Coexistence of Wi-Fi and LTE in the Unlicensed Band using Time-Domain Virtualization, *Sara Zimmo*

10:00-10:20: Efficiency improvement algorithm in the next generation Wi-Fi, *Jiyang Bai*

10:20-10:40: Light-Weight Dynamic Re-Keying for Encryption in Low-Rate Low-Power WSNs, *Elena Uchiteleva*

May 8, 2018	2:30-3:30PM	SEB 3109

Microsystems & DSP Session 1
Session Chair: TBA Judges:
TBA

2:30-2:50: Assessment of Amplified Parkinsonian Speech Quality Using Deep Learning, *Amr Gaballah*

2:50-3:10: Implementation of a FTSP Benchmark tool for Synchronization in Wireless Sensor Networks, *Asma Khalil*

3:10-3:30: Integration of RFID and Industrial WSNs to create an Ubiquitous Industrial Environment, *Ning Pan*

3:30-3:50: Network Device Allocation Optimization Using Genetic Algorithms, *Jason Falbo*

May 9, 2018	9:00-10:20AM	SEB 2202

Microsystems and DSP Session 2
Session Chair: TBA Judges:
TBA

9:00-9:20: Deep Learning For a Master Hearing Aid, *Krishnan Paramaswaran*

9:20-9:40: A New Multiplicative Inverse Architecture in Normal Basis Using Novel Concurrent Serial Squaring and Multiplication, *Mohammadamin Saburruhmonfared*

9:40-10:00: Modeling Methods for the Evaluation of Optomechanical Coupling Rates, *Brett Poulsen*

10:00-10:20: Electroacoustic benchmarking of Hearing Devices, *Manan Sheel*

Graduate Symposium 2018
Department of Electrical and Computer Engineering May 8 & 9, 2018

May 8, 2018	Invited Speaker (11AM-12NOON)	SEB 2200

Dr. Kamal Premaratne, PhD, Victor P Clarke Professor, Department of Electrical and Computer Engineering University of Miami Coral Gables, Florida, USA

Title: Learning and Reasoning With Uncertain Information: A Framework Based on Probability Bounds

Biography: Kamal Premaratne received the B.Sc. degree in Electronics and Telecommunication Engineering (1982) with First-Class Honors from University of Moratuwa, Sri Lanka. He obtained his M.S. (1984) and Ph.D.
(1988) degrees, both under the supervision of Professor Eliahu I. Jury and both in Electrical and Computer Engineering, from the University of Miami, Coral Gables, Florida, where he is presently the Victor P. Clarke Professor. He has received the "Mather Premium" and "Heaviside Premium" of the Institution of Electrical Engineers (IEE), London, UK, and the "Eliahu I. Jury Excellence in Research Award" and the "Johnson A.
Edosomwan Researcher of the Year Award" of the College of Engineering, University of Miami. He has served as an Associate Editor of the/IEEE Transactions on Signal Processing/ and the /Journal of the Franklin Institute/. He is a Fellow of IET (formerly IEE) and a Senior Member of IEEE. His current research interests include data uncertainty modeling, belief theory, evidence fusion, machine learning and knowledge discovery from imperfect data, and opinion/consensus dynamics in social networks.

Abstract: The practical utility and effectiveness of graphical structures, and in general machine learning algorithms, for reasoning and inference in a computationally efficient manner depend on how well one may extract the relevant parameters from training data. However, adequate representative statistical training data are often unavailable and, when available, real-world training data are often mired in incomplete/missing data.
Imputation of such data must be guided by how different variables are related to each other and/or by the underlying distribution which dictates data `missingness'. Interval-valued probabilities, or probability bounds, are better suited to deal with situations when such information is unknown or indeterminate, and when one is called on to harness the more qualitative subjective human-based

Graduate Symposium 2018 Department of Electrical and Computer Engineering May 8 & 9, 2018

information; they are also what arise naturally from incomplete or partial elicitation. In this presentation, we illustrate a framework that allows for parameter learning and reasoning with probability bounds in much the same manner as one would reason with probabilities in a Bayesian network. For datasets where attribute values could be unknown/missing or are known to lie within a set of values, an intuitive frequency counting method can be employed to learn interval-valued parameters. Importantly, the probabilities associated with an /arbitrary/ imputation strategy, including the underlying 'true' probabilities, are guaranteed to be contained within these intervals. The utility of the framework is demonstrated via some experimental results.

May 9, 2018	Invited Speaker (11AM-12NOON)	SEB 1200

Dr.

Title

Bio:

Abstract: