



5th GRADUATE STUDENT SYMPOSIUM SCHEDULE

May, 13-14, 2015

Department of Electrical and Computer Engineering
National University of Singapore

Day 1, May 13, 2015, Wednesday

Venues

		Track 1 E3-06-10	Track 2 E3-06-11	Track 3 E3-06-12	Track 4 E3-06-13	Track 5 E3-06-14
08:00-09:00 AM	Registration (LT2)					
09:00-09:15AM	Opening speech (LT2)					
09:15-10:00 AM	Keynote speech (LT2)					
10:00-11:00 AM	Tea Break and Poster Session 1 (LT2)					
11:00 AM-1:00 PM <i>(Session 1)</i>		Communications and Networks	Microwave and Radio Frequency	Control, Intelligent Systems, and Robotics	Microelectronics Technologies and Devices	Power and Energy Systems
1:00-02:00 PM	Lunch Break (LT2)					
02:00-04:00 PM <i>(Session 2)</i>		Signal Processing and New Media	Microwave and Radio Frequency	Control, Intelligent Systems, and Robotics	Microelectronics Technologies and Devices	Power and Energy Systems

Day 2, May 14, 2015, Thursday

Venues

		Track 1 E3-06-10	Track 2 E3-06-11	Track 3 E3-06-12	Track 4 E3-06-13	Track 5 E3-06-14
08:00-09:00 AM	Registration (LT2)					
09:00-09:15AM	Opening speech (LT2)					
09:15-10: 00 AM	Keynote speech (LT2)					
10:00-11:00 AM	<i>Tea Break and Poster Session 2 (LT2)</i>					
11:00 AM- 1:00 PM <i>(Session 3)</i>		Communications and Networks	Microwave and Radio Frequency	Control, Intelligent Systems, and Robotics	Microelectronic-s Technologies and Devices	Power and Energy Systems
1:00-02:00 PM	<i>Lunch Break (LT2)</i>					
02:00-04:00 PM <i>(Session 4)</i>		Signal Processing and New Media	Integrated Circuits and Embedded Systems	Control, Intelligent Systems, and Robotics	Microelectronics Technologies and Devices	Microelectronics Technologies and Devices
04:00-05:00 PM	<i>Tea Break and Poster Session 3 (LT2)</i>					
05:00-6:00 PM	<i>Closing ceremony and panel discussion (LT2)</i>					
6:30-8:30 PM	<i>Bowling event</i>					

Communications and Networks

SESSION 1

May 13, 2015, Wednesday

11:00 AM-1:00 PM

Track 1

E3-06-10

Hao Chenglong

Heart Rate and Breathing Rate Detection for Smart Cushion

Wang Qian

Simple, Unified and Accurate Prediction of Error Probability for Higher-Order MPSK/MDPSK with Phase Noise in Optical Communications

Dong Bo

High Sensitivity Fiber Bragg Grating Security Fence for Perimeter Intrusion Detection

Jia Chenlong

Resource Partitioning and User Association with Sleep-Mode Base Stations in Heterogeneous Cellular Networks

Utku Tefek

Primary and Secondary Exclusion Zones in Cognitive Radio Networks: Performance Analysis and System Design

Bhat Rajshekhar Vishweshwar

Dual-Path Energy Harvesting in a Transmitter with Battery Discharge Constraints

Communications and Networks

SESSION 3

May 14, 2015, Thursday

11:00 AM-1:00 PM

Track 1

E3-06-10

Gao Rui

Managing Correlated Information for Distributed Localization of a Team of Cooperative AUVs

Purnima Murali Mohan

Towards Fast Failure Recovery in Software Defined Networks

Yinghao Guo

Optimal Memory Allocation and File Deployment for Local Caching with Social Network Information

Zhou Xun

Wireless Power Meets Energy Harvesting: A Joint Energy Allocation Approach

Luo Shixin

Capacity Region of MISO Broadcast Channel with SWIPT

Lee Seunghyun

Collaborative Wireless Energy and Information Transfer in Interference Channel

Microwave and Radio Frequency

SESSION 1

May 13, 2015, Wednesday

11:00 AM-1:00 PM

Track 2

E3-06-11

Lin Fenghan

A Metamaterial-Based Broadband Circularly Polarized Aperture-Fed Grid-Slotted Patch Antenna

Goh Chean Khan

A UHF Near-field and Far-field RFID Metamaterial-inspired Loop Antenna

Srien Sithara Syed Nasser

Analysis on Axial Ratio Beam Width of Circularly Polarized Antennas

Tianwei Deng

Design Broadband and Ultrathin Metamaterial Absorbers from S Band to Ku Band

Amin Kianinejad

Compact Mode Converter Design for Symmetric Slow-Wave Transmission Line

Microwave and Radio Frequency

SESSION 2

May 13, 2015, Wednesday

02:00-04:00 PM

Track 2

E3-06-11

Mahdy Rahman Chowdhury

Bound Surface Force Induced Pulling of Multiple Rayleigh Particles outside the Waveguides and Couplers

Gu Yinghong

Color Display by Silicon Fin Nanostructures

Ashraf Abdulrahman Adam Salih

Technique for Wideband Array Excitation Based on Characteristic Mode Analysis

Siegfred Balon

System Model for InnovSAR - a 35 GHz Airborne FMCW Synthetic Aperture Radar

Bao Zengdi

Design of a Miniaturized Flexible Implantable Antenna with Negligible Thickness

Microwave and Radio Frequency

SESSION 3

May 14, 2015, Thursday

11:00 AM-1:00 PM

Track 2

E3-06-11

Lei Wen

Miniaturized Differentially-fed Dual-band Implantable Antenna: Design, Realization, In Vitro and In Vivo Test

Wei Zhun

Numerical Study of Resolution in Near Field Microscopy for Dielectric Samples

Kush Agarwal

Efficient Wireless Power Link Design for Neural Implants in Non-Human Primates

Yong Zhihua

Emerging Giant Resonant Exciton upon Ta-substitution in Anatase $Ti_{1-x}Ta_xO_2$ Films

Control, Intelligent Systems, and Robotics

SESSION 1

May 13, 2015, Wednesday

11:00 AM-1:00 PM

Track 3

E3-06-12

Wang Kangli

A Semi-autonomous Reconfigurable Hybrid UAV with Vertical and Cruise Flying Abilities

Ke Yijie

Modeling Methodology of an Unconventional Aircraft (U-Lion) with Both VTOL and Fixed-wing Capabilities

Zhang Chong

A Novel Multi-Objective Ensemble Prognostic Approach for Remaining Useful Life Estimation

Arrchana Muruganatham

Evolutionary Dynamic Multiobjective Optimization via Kalman Filter Prediction

Ren Ruoxu

An Experimental Study of Correlation between Text and Image Similarity by Information Fusion Approach

Control, Intelligent Systems, and Robotics

SESSION 2

May 13, 2015, Wednesday

02:00-04:00 PM

Track 3

E3-06-12

Josey Mathew

Kernel-Based SMOTE for SVM Classification of Imbalanced Datasets

Mohammad Ikhsan

Automatic Assessment of Needle Insertion Safety in B-Mode Ultrasound

Sun Lu

State Estimation with Generalized t-Distribution Model

Liu Shuo

Uniform Local Air Flow Control

Yan Hengchao

SMOTE-Based Precognitive Maintenance Framework for Equipment Fault Diagnosis under Imbalanced Condition Monitoring

Control, Intelligent Systems, and Robotics

SESSION 3

May 14, 2015, Thursday

11:00 AM-1:00 PM

Track 3

E3-06-12

Li Xian

Approximate Feedforward Control

Xiao Shengtao

Reinforcement Learning Control for a Robotic Manipulator with Unknown Deadzone

Yip Chun Ming Tommy

Ensuring Zero Steady State Error in Interval Type-2 Fuzzy PI Control System with Non-symmetrical Fuzzy Sets

Chen Wang

Reference Adaptation of Robots in Physical Interactions with Unknown Environments

Mingming Li

Adaptive Tracking Control of Robotic Manipulators under Motion Constraints

Xiaomei Liu

Formation Control of Multi-agents in Constrained Space

Control, Intelligent Systems, and Robotics

SESSION 4

May 14, 2015, Thursday

02:00-04:00 PM

Track 3

E3-06-12

Lim Pin

Multimodal Degradation Prognostics Based on Switching Kalman Filter Ensemble

Yan Weili

Multirate Adaptive Feedforward FIR Filter for Suppressing Disturbances to the Nyquist Frequency and Beyond

Hu Bin

Earliest Switch-on of Dual Stage Actuation in Hard Disk Drives

Fangwen Tu

Disturbance Observer Based Control of Free-Flying Space Manipulator with Flexible Links and Joints

Jiang Rui

Time-based Finite-horizon Information Fusion For Urban Vehicle Localization

Microelectronics Technologies and Devices

SESSION 1

May 13, 2015, Wednesday

11:00 AM-1:00 PM

Track 4

E3-06-13

Wang Tao

Broadband Piezoelectric Micromachined Ultrasonic Transducer (pMUT) Using Mode-Merged Design

Dong Yuan

Germanium-Tin on Silicon Avalanche Photodiode for Short-Wave Infrared Imaging

Lei Dian

High Mobility Germanium-Tin ($\text{Ge}_{0.93}\text{Sn}_{0.07}$) P-MOSFETs with Surface Passivation by Silicon Atomic Layer Epitaxy

Goh Kian Hui

Novel Short-Channel $\text{In}_{0.53}\text{Ga}_{0.47}\text{As}$ Junctionless Nanowire nFET with Raised S/D Structure: An Ultimately Scaled 1-D Transistor Architecture

Sachin

Negative Differential Resistance in $\text{InAlAs}/\text{InGaAs}$ MOSHEMTs

Ye Lin Thu

Study of The Effect of Protective Layer on The Performance of Germanium Anode Lithium-ion Battery

Microelectronics Technologies and Devices

SESSION 2

May 13, 2015, Wednesday

02:00-04:00 PM

Track 4

E3-06-13

Vinodh Shanmugam

Analysis of Fine Line Screen and Stencil Printed Metal Contacts for Silicon Wafer Solar Cells

Siew Shawn Yohanes

Ultra-Smooth Ridge Waveguides and Ring Resonators in Titanium Diffused Lithium Niobate

Ang Shan Zheng

Optomechanical Force Estimation

Sun Ruize

Prompt Estimation of Vacancy Density in Low Thermal Budget Quasi-ohmic or Schottky Contacts in AlGaIn/GaN HEMTs

Tong Yu

MoS₂ Oxygen Sensor with Gate Voltage Stress Induced Performance Enhancement

Microelectronics Technologies and Devices

SESSION 3

May 14, 2015, Thursday

11:00 AM-1:00 PM

Track 4

E3-06-13

Weimin Li

Analysis of Microstructure and Surface Morphology of Sputter Deposited Molybdenum Back Contacts for CIGS Solar Cells

Liu Zhe

Luminescence Imaging Analysis of Light Trapping in Crystalline Silicon PV modules

Wang Dacheng

An Ultrathin Terahertz Quarter-wave Plate Using Planar Babinet-inverted Metasurface

Gao Minmin

Fine Structural Tuning of Whereabout and Clustering of Metal–metal Oxide Heterostructure for Optimal Photocatalytic Enhancement and Stability

Zhang Xiaoyi

Surface Orientation Effect with Different Body Thicknesses and EOTs of GaSb Double-gate Ultra-Thin-Body MOSFET

Microelectronics Technologies and Devices

SESSION 4

May 14, 2015, Thursday

02:00-04:00 PM

Track 4

E3-06-13

Mengjie Li

Modelling and Characterisation of BBr₃ Boron Diffusion Process for n-type Si Wafer Solar Cells

Li Chengguo

Polarity Inversion of GaN by Group-III Source Preflow in Metal-organic Chemical Vapor Deposition

Hou Haowen

Edge Plasmons and Cut-off Behavior of Graphene Nano-ribbon Waveguides

Yang Li

Optimization of Short Channel Ferroelectric MOSFET for Low Power Circuit Application

Prakash Pitchappa

Interpixelated MEMS Metamaterial

Dihan Md. Nuruddin Hasan

Dipolar Resonance Enhancement and Magnetic Resonance in Cross-coupled Bow-tie Nanoantenna Array by Plasmonic Cavity

Microelectronics Technologies and Devices

SESSION 4

May 14, 2015, Thursday

02:00-04:00 PM

Track 5

E3-06-14

Li Shiju

MOCVD Growth of Semipolar GaN by Epitaxial Lateral Overgrowth on Patterned Silicon Substrate without Masking Step

Liu Yi

Thermal Interface Conductance Across a MoS₂/ Hexagonal Boron Nitride Heterojunction

Zhao Yunshan

Ultralow Thermal Conductivity in Mesoporous Single-Crystalline Silicon Nanowires

Pannirselvam S/O Somasuntharam

Trap Analysis of AlGa_N/Ga_N MOS-HEMTs using Gate Stress Induced Transient Current Methodology and TCAD Simulation

Soham Sataparno Saha

Photonic Devices on Lithium-Niobate-on-Insulator Chips

Power and Energy Systems

SESSION 1

May 13, 2015, Wednesday

11:00 AM-1:00 PM

Track 5

E3-06-14

Sivakumar Nadarajan

Stator Winding Turn-to-turn Short Circuit Fault Detection and Diagnosis in Wound Field Brushless Synchronous Generator Using Auxiliary Winding Voltage

Sindhu Santosh Shetty

Thermal Comfort Improvement and Energy Savings in Office Buildings using Occupant Feedback

Naga Brahmendra Yadav Gorla

A New Control Scheme for Grid Connected Voltage Source Converters for Supporting Reactive Power

Shiva Shankaranarayanan Muthuraj

Multiple Transformer Turns Ratio Based Dual Active Bridge Converter

Sivakumar Nadarajan

Improved Brushless Synchronous Generator Model to Study the Turn-to-Turn Short Circuit Fault

Dong Zibo

A Novel Hybrid Approach Based on Self-organizing Maps, Support Vector Regression and Particle Swarm Optimization to Forecast Solar Irradiance

Power and Energy Systems

SESSION 2

May 13, 2015, Wednesday

02:00-04:00 PM

Track 5

E3-06-14

Debjani Chakraborty

Parasitics Assisted Soft-switching and Secondary-Clamped Current-fed Bidirectional Voltage Doubler for Fuel Cell Vehicles

Gnana Sambandam Kulothungan

Survey on Current Fed Multilevel Power Converters

Amarendra Edpuganti

Optimal Pulsewidth Modulation of Medium-Voltage Modular Multilevel Converter

Radha Sree Krishna Moorthy

Impulse Commutated Zero Current Switching Current-fed Three Phase DC/DC Converter: Analysis, Design and Experimental Results

Ravi Kiran Surapaneni

A Single Stage CCM Zeta Microinverter for Solar Photovoltaic AC Module

Satarupa Bal

A Naturally Commutated Three-Phase Current-fed Bidirectional DC-DC Converter for Micro-grid Application

Power and Energy Systems

SESSION 3

May 14, 2015, Thursday

11:00 AM-1:00 PM

Track 5

E3-06-14

Anurag Sharma

A Decentralized Multi-Agent System Approach for Service Restoration Using DG Islanding in Uncertain Environment

Rahul Mehta

Integration of Plug-in Electric Vehicle Charging Parks as Intelligent Virtual Power Plants into Distribution System

Dhivya Sampath Kumar

Adaptive Algorithm for The Protection of Distribution Systems

Ali Kawsar

A Nine Switch Interleaved Three Phase AC-DC Single Stage Isolated Converter

Ce Shang

Coupled Demand and Generation Side Management for Multi-comfort Building Automation

Zhang Yuan

Rapid Junction Temperature Estimation for SiC Power MOSFET in DC Microgrid

Aloysius Wishnu Aryaputera

Very Short-term Irradiance Forecasting at Unobserved Locations Using Spatio-temporal Kriging

Signal Processing and New Media

SESSION 2

May 13, 2015, Wednesday

02:00-04:00 PM

Track 1

E3-06-10

Shahab Ensafi

Sparse Non-Parametric Bayesian Model for HEP-2 Cell Image Classification

Yuan Jun

CNNs for Whole-image Regression

Agus Pratondo

Integrating Machine Learning with Level Set Method for Medical Image Segmentation

Cai Lile

Rule-Enhanced Transfer Function Generation for Medical Volume Visualization

Signal Processing and New Media

SESSION 4

May 14, 2015, Thursday

02:00-04:00 PM

Track 1

E3-06-10

Tan Hui Li

Fast Coding Quad-Tree and Mode Decisions for High Efficiency Video Coding (HEVC)

Lin Kaimo

Video Stitching from Hand-held Camera Inputs

Jiang Ming

SALICON: Saliency in Context

Huang Junshi

Deep Search: Attribute-aware Neural Network for Clothes Retrieval

Abhishek Mishra

Disambiguating Space through Time: Motion Segmentation using Neuromorphic Imagers

Integrated Circuits and Embedded Systems

SESSION 4

May 14, 2015, Thursday

02:00-04:00 PM

Track 2

E3-06-11

Anoop C Patil

Silk for Neural Implants

Luo Zhihong

Power Management Circuit for Energy Harvesting

Pham Nam Khanh

A Multi-stage Leakage Aware Resource Management Technique for Reconfigurable Architectures

Teng Kok Hin

A 103 pJ/bit Multi-channel Reconfigurable GMSK/PSK/16-QAM Transmitter with Band-shaping