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TECHNICAL PROGRAMME – 8TH NOVEMBER 2018

Session 1 (11.00 am – 1.00 pm)

Topic: Bioinformatics/Bioinstrumentation/Signal Processing/ Antenna/ Image Processing/System on Chips

1. ***Millimeter Wave Performance Evaluation in Open Areas and Suburban Putrajaya.....1***

   Nor Fadzilah Abdullah (Universiti Kebangsaan Malaysia & Centre for Communications Research, Malaysia)

   The demand for multi-gigabit data rate and insufficient spectrum in the microwave bands has inspire the use of millimeter wave bands in future fifth generation (5G) networks. In this paper, a 3D ray tracing model is used to analyse the statistical parameters for a millimeter wave channel operating at different carrier frequencies. The parameter consist of RMS delay spread, K-Factor and average received power. A map of Precint 9, Wilayah Persekutuan Putrajaya is used in the simulation of cellular implementation in millimeter wave. The effect of different antenna element geometries have also been investigated. The results of this work can be used as a basis to design a millimeter wave network to improve user quality of experience.

2. ***Preliminary Investigation on the Effect of Speed Variation to Pressure Distribution for Flat, Medium and High Foot Arch.....6***

   Noor Ezan Abdullah and Nina Madzhi

   This paper presents the investigation on the types of foot arch affecting plantar pressure distribution during running. In this study, 20 participants of different arch types volunteered. The participants were required to run on the treadmill at three different speed with the FSR sensors placed under the sole of the shoes. Two sensors used, one at forefoot and one at rear foot. Only left foot was examined through this study. The data was displayed in serial monitor and. The data were analysed to compare the foot pressure of individuals during running and to analyse the effect of speed on the voltage measured with different arch types. The rear foot showed higher pressure value compared to the fore foot

3. ***Analysis and Classification of Muscle Activity During Biceps Exercise Using MMG Signals.....12***

   Mohamad Razif Mohamad Ismail

   Surface Mechanomyography (MMG) is the recording of mechanical activity of muscle tissue. MMG measures the mechanical signal (vibration of muscle) that generated from the muscles during contraction or relaxation action. This project is determined to focus on the study and develop suitable procedures and methods to analyze and classify muscle activity during biceps exercise using MMG Signals. There are two channels of MMG signal has been placed into biceps brachii muscles (Short Head Biceps Brachii and Long Head Biceps Brachii) by using VMG sensor (TSD250A) with two different weights. Five features have been

Session 2 (2.15 pm – 4.15 pm)
Topic: Fault Detection/RF/Remote

1. *Auto-reclose Relay Simulation for Research and Education.....29*
   Muhd Hafizi Idris, Mohd Rafi Adzman, Mohammad Faridun Naim Tajuddin, Melaty Amirruddin and Mohd Alif Ismail
   Auto-reclose relay is an important relay used to reenergize a line after the line was tripped by main protection relay due to fault occurrence. Failure of auto-reclose relay to reenergize the line will make power can't be transmitted through the line and power system will be in stress condition. Knowledge of auto-reclose protection scheme is quite difficult to be understood and only few power system software has auto-reclose model for power system study and the software are costly. This research is about modelling auto-reclose relay and its' scheme using Matlab Simulink. The developed model has been developed with some limitations to simplify the modelling process and the results gained show the capability of Matlab Simulink software to be used to model the scheme for education and research purpose.

2. *An Overview of Data-Driven and Model-Driven Based Prognostics Techniques for Power Modules.....34*
   Muhamad Hazwan Abdul Halim, Norlida Buniyamin and Nobuyuki Naoe
   Prognostics is a practice of predicting health condition and remaining useful lifetime (RUL) of a device or a system. The prognostics of power module enabling the assessment of health condition and time predicted when the module will fail given the current characteristics and loading condition. The presents practice of prognostics on power transistor can be classified into three groups: Model-Driven, Data-Driven and Hybrid method. This paper present an overview of the Model and Data-Driven Methods and their main problem is discussed. This paper also proposes a new prognostics methodology, which utilizes the characteristics of voids, and ON-State resistance as inputs for the proposed algorithm termed as RULPAV. The proposed methodology is expected to improve the RUL prediction as well as to minimize the reliance on junction temperature measurement.

3. *One-Sided Variable Sampling Interval Control Chart for Monitoring the Coefficient of Variation.....40*
   Wai Kwan Lau, Zhi Lin Chong and Peh Sang Ng
   The regular practice of using a coefficient of variation (CV) control chart is achieved by collecting the samples at a fixed sampling interval (FSI). Recently, various studies showed that the detection efficiency of a control chart in monitoring shifts in the CV can be enhanced by implementing the variable sampling interval (VSI) strategy. However, these studies also showed that the adaptive charts, such as the VSI chart, are ineffective in detecting a decrease in the CV. As a remedy to this problem, a one-sided VSI chart that is effective in monitoring the increase in the CV is required. Therefore, this paper proposes a one-sided VSI CV chart and compares its performance with the two-sided VSI CV

TECHNICAL PROGRAMME – 9TH NOVEMBER 2018

Session 3 (9.00 am – 10:30 am)
Topic: Expert System/Parallel Programming

1. ***Hardware Implementation of 24-Bit Vedic Multiplier in 32-Bit Floating-Point Divider.....60***
   C Hanuman and J. Kamala
   Most of the Digital operations in computing systems performed by using Floating-Point (FP) arithmetic. FP multiplication is widely used arithmetic operation compared to addition, subtraction and division operations. Multipliers performed using Vedic technique shows higher speed of operation with better precision but it occupies slightly more area compared to conventional multipliers. In this paper, we implemented 24-bit Vedic multiplier using Urdhva-Tiryakbhyam (UT) technique with modified Carry Save Adders (CSA). The proposed high speed multiplier is used for calculating Mantissa part (24-bit) in single precision FP Division. This method outperform existing multipliers used for FP Division in terms of speed and accuracy. All the design parameters are evaluated using VIVADO synthesis tool and results are verified by simulation. The design was coded in Verilog HDL and is implemented in NEXYS 4 DDR FPGA kit.

2. ***Exploration of TCP Parameters for Enhanced Performance in a Datacenter Environment.....65***
   Mohsin Khalil and Farid Ullah Khan
   TCP parameters in most of the operating systems are optimized for generic home and office environments having low latencies in their internal networks. However, this arrangement invariably results in a compromized network performance when same parameters are straight away slotted into a datacenter environment. We identify key TCP parameters that have a major impact on network performance based on the study and comparative analysis of home and datacenter environments. We discuss certain criteria for the modification of TCP parameters and support our analysis with simulation results that validate the performance improvement in case of datacenter environment.

3. ***ANN Diagnostic System for Various Grades of Yellow Flesh Watermelon Based on the Visible Light and NIR Properties.....70***
   Noor Ezan Abdullah, Azra Afhzan Ab Rahim, Abg Mohd Azamuddin Abang Yahya, Anis Diyana Rosli and Nina Madzhi
   There are many traditional method to identify the ripeness of the watermelon. Some of the method is destructive and not many people have knowledge to identify the watermelon is ripe or not. The aim of this study is to develop an intelligent system that able to classify the ripeness of various type of watermelon using Artificial Neural Network (ANN) as the classifier system by using MATLAB through a different training algorithms which are Levenberg-Marquardt, Scaled Conjugate Gradient and Resilient Backpropagation. The classifying technique is made based on the optical properties (VIS/NIR) for

Session 4 (10.30 am – 12:00 pm)
Topic: Circuit & Electronics /CAD