EDITOR'S COLUMN:

Assalamualaikum WBT and Greetings to all…

Dear Readers,

Welcome to the latest edition of BIT@FSKKP. This bulletin alert the members of the faculty, university and the general public about the latest happenings in the Faculty of Computer Systems & Software Engineering (FSKKP), Universiti Malaysia Pahang.

This edition of the bulletin is a short and leisurely read, and as such we the Board of Editors would like to invite everyone to enjoy the news and updates. We welcome any feedback and feel free to contact the editors should you have any input for the next edition.

Assoc. Prof. Dr Noraziah Ahmad

Chief Editor:
Assoc Prof Dr Noraziah Ahmad

Editors:
Dr Md Arafatur Rahman
Dr Md Saiful Azad
Dr Abdulghani Al Ahmed
Dr Hai Tao
Dr Mohamed Ariff Ameedeen
Jamaludin Sallim

Graphic Design & Layout:
Izzi Habibi Aris

Special Guest Designer:
Abbas Saliimi Lokman

MULTI PARADIGM MODELLING VIA XSLT

Modelling is becoming more and more common in today's software development, be it as a requirement specification model, a configuration model, an activity model or even a more formal model intended for analysis. These models are often created for specific stakeholders and do not communicate with one another creating an influx of heterogeneous models. This presents a hefty challenge to the software developers of today – needing to be well-versed in multiple modelling languages in order to be able to work with the various models involved in the process of developing the software.

Multi-paradigm modelling brings forward a platform of interoperability between the various models centered on model transformation. This interoperability creates a seamlessness for the developers where one type of model may be transformed into another, independent of the level of abstraction or level of formalism involved. One such example is the model transformation algorithm SD2PN [1] that creates interoperability between UML [2] Sequence Diagrams and Petri Nets [3], models with clearly differing levels of formalism.
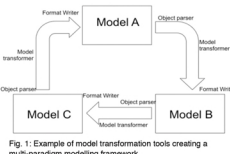

Fig. 1: Example of model transformation tools creating a multi-paradigm modelling framework.

Fig. 1 presents a Multi-Paradigm Modelling scenario with three types of models. Each model transformation in this scenario requires a set of three tools (an object parser to parse the source model into objects of the tools chosen programming language, a model transformer that transforms one set of objects into another, and a format writer that writes the objects in the format specified by the destination model). In this scenario of three models, a total of nine tools are used for interoperability between these models.

An alternative to having numerous Model Transformations for interoperability between models, the author suggests using XSLT (Extensible Stylesheet Language Transformation) [4] as the interoperability base framework. Most model modelling tools use XML (Extensible Markup Language) as its core language beneath the models. This could be advantages for Multi Paradigm Modelling since XML models could communicate with one another using XSLT as a framework.
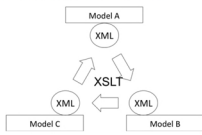

Fig. 2: Example of multi-paradigm modelling via XSLT.

Fig. 2 presents an overview of how XSLT could be the basis of model interoperability in stark contrast to the example in Fig. 1. Assuming all the models have XML representations, each model could communicate with one another through a set of transformations defined via XSLT. In this example, the nine tools used in Fig. 1 are replaced with just three sets of XML to XSLT definitions. In cases of expansions, the number of definitions needed in XSLT based transformations would also be equivalent to number of models; whereas in a traditional model transformation environment, the expansion would be of polynomial complexity.

All in all, a Multi Paradigm Modelling solution that uses XSLT as a framework could be the way forward in the interoperability of models for the software development community. For further reading, the author encourages you to refer to [5].

1. Ameedeen, M.A. and B. Bordbar, A Model Driven Approach to Represent Sequence Diagrams as Free Choice Petri Nets, in 12th International IEEE Enterprise Distributed Object Computing Conference (EDOC). 2008: München, Germany. p. 213 - 221.
2. OMG, OMG Unified Modelling Language (UML) Superstructure 2.1, available at www.omg.org. 2007.
3. Murata, T., Petri Nets: Properties, Analysis and Applications. Proceedings of the IEEE, 1989. 77(4): p. 541-580.
4. W3C, XSLT Specification 2.0, available at www.w3.org. 2007.
5. Ameedeen, M.A., Multi Paradigm Modelling via XSLT, in International Journal of Computer Theory and Engineering, Vol 8, No 4. 2016.

EDITORIAL BOARD:

| Faculty of Computer Systems & Software Engineering

Universiti Malaysia PAHANG
Engineering • Technology • Creativity

BIT@FSKKP

FSKKP LENS
| Designed by **Abbas**

2015 - 2016

Maulidur Rasul Celebration
7 January 2016
Ump Pekan

Hands-On-Training: Lego Mindstorms Education NXT
28 January 2016 | Ump Gambang

CITREX 2016
7-8 March 2016
Ump Gambang

FRGS Workshop
18-19 February 2016 | Vistana, Kuantan

KESUKOMP Lunch
2 March 2016 | UMP Gambang

Pre-Strategic Planning Workshop
11 April 2016
Ump Pekan

Farewell Party
16 March 2016 | UMP Gambang

HIGHLIGHTS:

- Congratulations on New FSKKP Dean's Appointment and FSKKP members' promotions

- FSKKP won 40 medals in CITREX 2016)
  (8 Gold Medals and Special Award: Most Commercial IT Innovation Award)

- PhD Student won 1st place in UMP 3MT for Technology Category

- International Keynote Speech - ICEECE 2016:
  Multi Paradigm Modeling Via XSLT

July Edition - **2016**

CITREX 2016

Special Award: Most Commercial IT Innovation Award
4 Gold, 5 Silver & 8 Bronze Medals

DR. ABDULRAHMAN AHMED MOHAMMED AL-SEWARI (Gold Medal)
- Software Testing Cost and Time Saving based on new Combinatorial Testing Strategy using a new Modified Greedy Algorithm

DR. SURYANTI AWANG (Gold Medal)
- The Fusion of Face and Dynamic Signature for User Authentication System

DR. SYAFIQ FAUZI KAMARULZAMAN (Gold Medal & Special Award)
- Wireless Network Sensory Device for Real-Time Water Level Monitoring

ASSOC. PROF. DR. MAZLINA ABDUL MAJID (Gold Medal)
- Developing Color Scheme Assessment Tool (COSAT) for Improving Usability of Web Page on Color Selection

CENDEKIA BITARA AWARD 2014
Awarded on 27 May 2015 at The Zenith Hotel, Kuantan

UNIVERSITY ACADEMIC AWARD:
TEACHING EXCELLENCE (Applied Science)
- Dr. Mohamed Ariff Ameedeen

CENDEKIA BITARA AWARD: JOURNAL PUBLICATION
- Dr. Qin Hongwu & Dr. Md Arafatur Rahman

CENDEKIA BITARA AWARD: RESEARCH PRODUCT
- Assoc. Prof. Dr. Noraziah Ahmad

MERIT AWARD: JOURNAL PUBLICATION
- Prof. Dr. Kamal Zuhairi Zamli
- Assoc. Prof. Dr. Noraziah Ahmad
- Dr. Muhammad Normani Kabir
- Dr. Ali Safa Sadiq
- Dr. Taha Hussein Alaaldeen Rassem
- Dr. Awanis Romli

MERIT AWARD: RESEARCH PRODUCT
- Prof. Dr. Kamal Zuhairi Zamli
- Assoc. Prof. Dr. Mazlina Abdul Majid
- Assoc. Prof. Dr. Noraziah Ahmad

CONGRATULATIONS!

Best Paper Award
ELEVENTH INTERNATIONAL CONFERENCE ON NETWORKING AND SERVICES (ICNS' 15)
DR. MD ARAFATUR RAHMAN
Mobility-Aware Channel-Availability based Channel Selection Technique

International Grant
COMSTECH-TWAS
DR. ABDULGHANI ALI AHMED
Distributed System for Unsolicited Traffic Detection in Large-Scale Networks

GRANTED PATENTS
Intellectual Property Corporation of Malaysia (MyIPO)

A NEIGHBOUR REPLICATION GRID (NRG) DAEMON FOR MANAGING REPLICATION AND TRANSACTIONS IN DISTRIBUTED ENVIRONMENT
- Assoc. Prof. Dr. Noraziah Ahmad

METHOD OF ESTIMATING FUEL CONSUMPTION COST
- Assoc. Prof. Dr. Noraziah Ahmad
- Assoc. Prof. Dr. Ahmed Abdalla
- Mohd Amer Mohd Azhar
- Siti Zanariah Satari
- Mohammad Affendy Omardin
- Roslina Mohd Sidek

New Administrative Appointments & Promotions

NEW DEAN
Prof. Dr. Kamal Zuhairi Zamli

NEW CIReL DIRECTOR (CENTRE OF INSTRUCTIONAL RESOURCES & e-LEARNING)
Dr. Adzhar Kamaludin

NEW ASSOC. PROF.
Assoc. Prof. Dr. Mazlina Abdul Majid

NEW HEAD OF DEPARTMENT (COMPUTER SCIENCE)
Dr. Junaida Sulaiman

NEW HEAD OF DEPARTMENT (MASTER)
Dr. Suryanti Awang

[EXHIBITIONS]

26th International Invention and Innovation Exhibition (ITEX 2015) & British Invention Show 2015 (BIS 2015)

DOUBLE GOLD AWARD & GOLD MEDAL (BIS 2015), GOLD MEDAL (ITEX 2015)
ARKids - AUGMENTED REALITY SCIENCE FOR KIDS
- Noraniza Samat
- Dr Rahmah Mokhtar
- Dr. Ngahzaifa Ab Ghani
- Dr. Luhur Bayuaji
- Siti Normaziah Ihsan

14th International Conference and Exposition on Inventors by Institutions of Higher Learning (PECIPTA 2015)

GOLD MEDAL
TBAT: A NOVEL STRATEGY FOR MINIMIZATION OF T-WAY INTERACTION TEST SUITE BASED ON THE PARTICLE SWARM OPTIMIZATION AND THE BAT ALGORITHM
- Prof. Dr. Kamal Zuhairi Zamli
- Yazan A. Al Sariera

Thailand Inventors' Day 2015

SPECIAL AWARD: IIPNF LEADING INNOVATION AWARD & SILVER MEDAL
BINARY VOTE ASSIGNMENT GRID QUORUM LOAD BALANCING FOR MANAGING TRANSACTIONS OF CRITICAL DISTRIBUTED DATABASE SYSTEMS
- Assoc. Prof. Dr. Noraziah Ahmad
- Assoc. Prof. Dr. Ahmed Abdalla
- Abdullah Fairuzullah Ahmad Tajuddin
- Ainul Azila Che Fauzi
- Ahmad Fitri Hassan

GOLD MEDAL
SMART ENERGY DETECTION SYSTEM FOR REAL TIME POWER CONSUMPTION
- Assoc. Prof. Dr. Noraziah Ahmad
- Assoc. Prof. Dr. Ahmed Abdalla
- Dr. Muamer N Mohammed
- Sulastri Abdul Manap
- Abdullah Fairuzullah Ahmad Tajuddin
- Ahmad Fitri Hassan

PROGRAM OFFERED IN FACULTY OF COMPUTER SYSTEMS & SOFTWARE ENGINEERING

Undergraduate
- Bachelor of Computer Science (Computer Systems & Networking) with Honours
- Bachelor of Computer Science (Software Engineering) with Honours
- Bachelor of Computer Science (Graphics & Multimedia Technology) with Honours
- Diploma of Computer Science

Postgraduate

COURSEWORK
- Master of Science (Information & Communication Technology)
- Master of Science (Software Engineering)
- Master of Science (Computer Networking)

RESEARCH
- Master of Science (Computer Science)
- Master of Science (Software Engineering)
- Doctor of Philosophy (PhD in Computer Science)

HOW TO APPLY FOR COURSEWORK AND RESEARCH PROGRAMMES:

Applicants may apply through UMP postgraduate website http://ips.ump.edu.my/, using the application form available on the website. Upon filling-up the application form, applicants must forward copies of the relevant documents e.g. academic records, transcripts, research proposal through electronically or using normal email.

All applications should be accompanied with the processing fees of RM25 for Malaysian OR USD30 for international applicants.

The relevant documents and processing fees are compulsory for the administration process.

Research Groups at FSKKP
- Information System (InSys)
- Multimedia Computing & Computer Vision (MCVIS)
- System Network & Security (SysNets)
- Soft Computing & Intelligent System (SPINT)
- Software Engineering Research Group (SERG)

FSKKP Official Portal
http://fskkp.ump.edu.my

> STUDENTS' ACHIEVEMENTS <

[ρ] GOLD AWARD

UMP 3M Thesis Competition 2016

FIRST PRIZE
DEBASHISH DAS
An Efficient Time Series Analysis for Stock Market Prediction by Applying Hybridization of K-means Clustering Data Mining Algorithm and Optimized Neural Network

i-ENVEX 2016 @ UNIMAP

GOLD MEDAL
MIOR FARHANSYUKRI MIOR SHAHARUDDIN
Flood e-Management for Social Welfare Department

i-FINOG 2016

GOLD MEDAL
NURUL AIMI HAZWANI MAZLIN
A Development of Ward Rounds Application (WRA) for the Use of Medical Staff in Hospital

CITREX 2016

GOLD MEDAL

MIOR FARHANSYUKRI MIOR SHAHARUDDIN
Flood e-Management for Social Welfare Department

MOHD AMIZAR ABDUL MAJID
Mobile-Based Augmented Reality for Construction Engineering (Arc)

NURUL WAHIDAH MOHD ZIN
Sistem Pengurusan Guru Ganti Selangor

NURUL AIMI HAZWANI MAZLIN
Ward Rounds Application