

CSE News

March 2013

CYBER SECURITY DRILL

EXCLUSIVELY FOR SRI LANKAN BANKING INDUSTRY

Sri lankan banking sector
successfully completes the Cyber
Security Drill for the second time

UOM STUDENTS SHOW THEIR COLOURS

APICTA 2012

TECHFEST - IIT

CFA SRI LANKA INVESTMENT
RESEARCH CHALLENGE

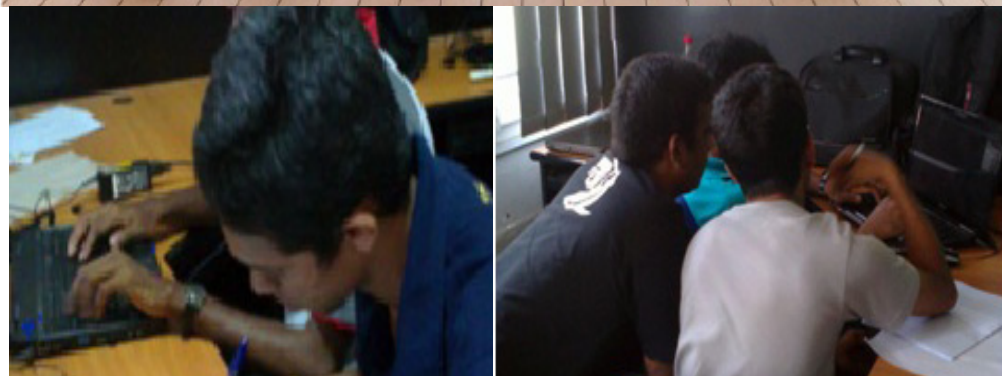
JOINT RESEARCH PROJECT

CSE (UOM), CSAIL (MIT) AND IBM



CONTENT

- 04 UoM at SAARC Cording Competition**
- 05 'KANTHAKA' at ISMS 2013**
- 06 Merit Award at APICTA 2012 in Brunai**
- 08 Joint research project CSE, CSAIL & IBM**
- 09 UoM at TECHFEST IIT**
- 10 Building a better internet in Asia Pacific**
- 11 CSE voice at APACHE Con 2013**
- 12 Cyber Security Drill**
- 14 Championship goes to UoM CFA Research Challenge Sri Lanka Flnals**
- 16 ISFiT Norway**
- 17 Workshop High performance computing for scientists**
- 18 MindSpark 2013**
- 19 Workshop Agile engineering & software craftsmanship**



FROM THE EDITORS

The department of Computer Science & Engineering, University of Moratuwa produce industry's most sought after young engineering graduates who are well equipped with both technical and soft skills. The success of the department is due to the commitment and excellence practiced by both the academic staff and the undergraduate students of the department.

Throughout the years, the staff, graduates and undergraduates from the department of CSE have shown outstanding performances in many fields and have contributed to a great extent in bringing honour and recognition to the department, university and to Sri Lanka. This news magazine is published to celebrate the achievements and contributions of the department and to inform of the new initiatives and projects carried out, while serving as a link between the outside world, alumni and the department of CSE.

We would like to extend our deepest gratitude and heartfelt thanks to everyone who contributed in numerous ways to bring out this edition of the magazine. Your comments, feedback and suggestions are greatly valued as they would assist us in making CSE News achieve its objectives.



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UOM AT SAARC CODING COMPETITION

The SAARC Coding Competition organized by the ACM Student Chapter of the Indian Institute of Technology Delhi (IITD) was held on 16th March 2013. The Department of CSE of the University of Moratuwa led the Council Region for Sri Lanka in this event where 256 teams comprising of undergraduates from Bangladesh, India, Pakistan and Sri Lanka tested their coding ingenuity and experience as well as the logical and theoretical knowledge.

A total of 15 3-member coding teams from University of Moratuwa and 8 teams from University of Peradeniya participated in this on-line event hosted by the popular coding enthusiasts site codechef (<http://www.codechef.com/SAARC13>). Each team had to complete programming tasks using a single workstation without the use of any form of integrated development environment (IDE) support or web resources. Team spirit was a significant contributing factor for success in this competition and the 4th place was won by team "knight0x300" from the Dept of ENTC comprising of Varuna Jayasiri, Nipuna Samarasekara and Buddhima Gamlath. There were many other groups who were able to come to top 100 in the competition.

'KANTHAKA' PRESENTED AT ISMS-2013 INTERNATIONAL

A research paper from the Final Year Project "Kanthaka: Big Data Caller Detail Record (CDR) Analyzer for Near Real Time Telecom Promotions" was presented at the 4th International Conference on Intelligent Systems, Modelling and Simulation (ISMS2013) conference held from 29th to 31st January at Bangkok, Thailand. This success was the culmination of a team effort of the four CSE students Amila Paranawithana,

Ananda Kumara, Dhanika Perera, and Pushpalanka Jayawardhana under the supervision of Dr. Shahani Weerawarana and Mr. Thilina Anjitha from hSenid Mobile Solutions (Pvt) Ltd. The research paper will be available to the wider scientific community through the IEEE Computer Society Digital Library (CSDL).munity.

ISMS2013 4th International Conference on Intelligent Systems, Modelling & Simulation Bangkok 29 - 31 January 2013





Vidas team at APICTA 2012 in Brunei Darussalam



UOM WINS A MERIT AWARD AT APICTA 2012 IN BRUNEI

Two undergraduate student teams from the Department of CSE participated in the Asia Pacific ICT Alliance Awards (APICTA) competition held in Brunei Darussalam from 3rd to 5th December 2012. The project "Siyapath - A P2P Volunteer Computing System based on Gossip Protocols" won the Gold Medal for Tertiary Education Category at the National Best Quality Software Awards (NBQSA) 2012 competition and was nominated to participate at APICTA 2012. This project was supervised by Dr Srinath Perera of WSO2 and Mrs Vishaka Nanayakkara of CSE. The project "Vidas - E Learning Platform for Visually Impaired", supervised by Dr Upali Kohomban of CodeGen and Dr Shantha Fernando and Dr Shehan Perera of CSE, won the Bronze Medal at NBQSA 2012 competition and was nominated to participate at APICTA 2012.

The APICTA competition has been held annually for the last 12 years and the

projects from UoM competed with teams from 16 countries including Australia.

Singapore, Malaysia and China from East to India and Pakistan from West. The project "Vidas", which won a Merit Award in the Tertiary Students category at APICTA 2012 was developed for visually impaired students and teachers at the Ceylon School for Blind by Chathuri Gunawardhana, Malshani Hasanthika, Diluka Piyasena and Dileepa Pathirana. The system provides a number of navigation facilities and Braille images, mathematical and text content printing facilities for the e-Learning platform Moodle. Introducing Vidas would facilitate visually impaired students and teachers to access the learning contents more interactively, efficiently and collaboratively.



JOINT RESEARCH PROJECT BY CSE (UOM), CSAIL (MIT) AND IBM

Prof. Gihan Dias and Prof. Sanath Jayasena from UoM

The Department of CSE and the Computer Science & Artificial Intelligence Laboratory (CSAIL) of the MIT in USA are presently conducting a joint research project funded by the IBM Corporation. The project work is supervised by Prof Gihan Dias and Prof Sanath Jayasena from UoM and Prof Saman Amarasinghe from MIT.

Prof Sanath Jayasena, who visited MIT and IBM in the US in February 2013 to participate in project progress review meetings explains the objective of this important collaboration: "the IBM-MIT-UoM collaborative research project is on performance analysis using machine learning techniques. The basic idea is to use performance even counts that can be gathered in modern processors for machine analysis. We started by developing a

methodology to detect false sharing, which can limit performance and scalability, in multi-threaded programs."

PERFORMANCE

ANALYSIS USING

MACHINE LEARNING

TECHNIQUES

UOM - SECOND RUNNERS-UP AT

TECHFEST IIT-BOMBAY

INTERNATIONAL ROBOTICS CHALLENGE 2013



Five students from the Departments of CSE (Dimuthu Upeksha, Chamila Wijayarathna, Maduranga Siriwardena), ME (Ishanga Rukshan) and ENTIC (Supun Tharanga) have teamed up to compete at Techfest in Mumbai, India on 4th and 5th January 2013. The robot designed and built by the stu-

dents was able to successfully navigate a grid based terrain and move objects in a fully autonomous operation. Their success enabled Sri Lanka to reach top position in the country rankings of the competition. The students also visited the TechFest exhibition held at IIT-Bombay Campus and toured landmarks in Mumbai city during the visit.

From Left – Chamila Wijayarathna, Dimuthu Upeksha, Maduranga Siriwardena, Ishanga Rukshan, Supun Tharanga



The robots designed and built by the students was able to successfully navigate a grid based terrain and move objects in a fully autonomous operation”

BUILDING A BETTER INTERNET IN ASIA PACIFIC

APRICOT 2013

APRICOT (Asia Pacific Regional Internet Conference on Operational Technologies) is a prestigious regional ICT event, which began in 1996 and since then continues to provide a unique and successful educational forum for Internet builders in the region to learn from their peers and other leaders in the Internet community from around the world. This gathering

the Internet within the Asia Pacific region.

This year, APRICOT 2013 held at Shangri-La Hotel in Singapore from 19th February to 1st March was attended by Prof Gihan Dias of the Department of CSE where he had the opportunity to share his experience as a Domain Registrar with colleagues from the region.



of Internet technologists, engineers, policymakers, and operators participate in seminars, workshops, tutorials, conference sessions, birds-of-a-feather (BOFs), and other forums all with the goal of spreading and sharing the knowledge required to operate



// Stream based High Performance Solution for JSON<-->XML lossless transformation"

CSE VOICE AT APACHE CON NA 2013

Shameera Rathnayaka, a final year undergraduate student from the 2008 batch in the Department of CSE attended the annual conference of Apache Software Foundation, ApacheCon NA 2013, in Portland, Oregon, USA from 24th February to 3rd March 2013. He was awarded a conference participation and travel grant in recognition of his 2012 Google Summer of Code project contribution as well as due to his overall contribution to several Apache projects like Apache Axis2

in the past few years. He was the only student participant from any Sri Lankan university to the conference this year and had the opportunity to host a conference session on the outcome of his project "Stream based High Performance Solution for JSON<-->XML lossless transformation".



CYBER SECURITY DRILL

SRI LANKAN BANKING SECTOR SUCCESSFULLY COMPLETES

THE ANNUAL CYBER SECURITY DRILL

FOR THE 2ND TIME

Information security specialists watching the Internet for latest trends report the acceleration of cyber attacks based on Advanced persistent threats (APT) on the banking and financial sector, which accounts for many millions in losses to both banks and their customers. The opportunity costs to the due to these attacks on the banking industry might be even greater as widely reported attacks and the devastations left in their aftermath leave both banks and customers fearful of integrating and embracing technology that can clearly deliver cost savings and greater customer satisfaction.

As financial and technology confidence losses mount due to various IT frauds, especially spear phishing attacks, advanced persistent threats targeted at financial industry, it has become imperative for Sri Lankan banks, in the best interest of their customer's to be prepared to successfully counter cyber attacks. To meet this critical challenge, the Cyber Security Drill Team of the Department of Computer Science and Engineering of the University of Moratuwa in collaboration with TechCERT conducted the annual cyber security drill for the second time exclusively for Sri Lankan banking industry.

The cyber security drill, conducted on 22nd August 2012, spanned a period of four hours with the participation of eight major banks in Sri Lanka. The theme of the Cyber Security Drill 2012 is "Advance Persistent

Threats and Coordination within Sri Lanka". The objective is for participating teams to exercise incident response handling arrangements to mitigate the impact of advance persistent threats that involved large scale malicious software propagation and attacks capable of impairing economic activities and information harvesting. This exercise enhanced the communication protocols, technical capabilities and quality of incident responses for assuring Internet security and safety.

The threat scenario was based on an advanced persistent attack that harvest confidential information of banking customers. A team of engineers from TechCERT specializing in cyber security trained an 18-member cyber security drill team on the planning, logistics and operations of conducting cyber attacks and defenses while spearheaded the Exercise Control (EXCON) operations, which provided a central point of observation and coordination for the cyber security drill. During the exercise the IT security specialists

along with the higher management of the participating banks untangled the scenario-based attacks towards a virtual bank. The cyber security drill team units, co-located with participating bank information systems staff, provided technical expertise on site to the banking staff and helped them improve their computer incident response actions.

The drill was observed at the EXCON by representatives from the Department of Computer Science and Engineering of the University of Moratuwa, Central Bank of Sri Lanka, Telecommunications Regulatory Commission of Sri Lanka and senior officials from financial sector technology providers.

The cyber security exercise was declared a success with participating banks completing the incident response and defensive action tasks prepared by the drill team. It is expected that this successful cyber security exercise would contribute to the further improvement of the overall incident

handling and management processes and better prepare the Sri Lankan banking industry to face emerging Internet based threats.

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*...exclusively
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Sri Lankan
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CHAMPIONSHIP GOES TO UOM.....!

CFA SRI LANKA INVESTMENT RESEARCH CHALLENGE

2012/ 2013



*winners of the
competition,
University of Moratuwa
qualified to
represent Sri Lanka at
the Asia Pacific regional
competition to be held
in Malaysia in February*

A team representing University of Moratuwa emerged as the winners of the CFA Sri Lanka Investment Research Challenge (CFA SLRC) 2012/13, which was organized by the CFA Institute of Sri Lanka for the sixth consecutive year. CFA Institute Research Challenge is an annual, global educational initiative promoting the best practices in equity research among business school students from leading universities through hands-on mentoring and intensive training in company analysis and presentation skills. The CFA SLRC is the local level of the Global CFA Institute Research Challenge.

Priyanthan Pavalanathan (CSE), Kulunu Vithanage (ERE), Niles Perera (TLM), Sachith Vidanapathirana (CPE) and Nidarsha Senanayake (TLM) have teamed up to represent University of Moratuwa at the national level competition. This is the first time, a team consisting of undergraduates from University of Moratuwa emerged as winners in this competition.

The 2012/13 local competition saw teams from the University of Colombo, University of Sri Jayawardanepura, University of Moratuwa, University of Kelaniya, APIIT and Royal Institute taking part. The teams had to analyse a publicly quoted company, Colombo Dockyard PLC, draft a report and present the investment thesis to a panel of investment professionals.

As the winners of the national competition, University of Moratuwa has qualified to represent Sri Lanka at the Asia Pacific regional competition to be held in Malaysia in February 2013. The Asia Pacific round will see 19 teams from 16 countries taking part and the winners of this round will progress to the Global Final to be held in London in April 2013.

STUDENTS FROM UOM TO ISFIT - NORWAY

The “International Student Festival in Trondheim” (ISFiT), which is the world’s largest international student festival held bi-annually with over 450 students from all over the world attending 17 different workshops and taking part in the culture program of the festival had four student participants from University of Moratuwa this year.

The students from University of Moratuwa, Lakmal Padmakumara (CSE), Vihangun Ariyaratna (CE), Suren Perera (CE) and Chathuraka Kaushalya (EE) were in the city of Trondheim, Norway from 27th January to 17th February. The theme for ISFiT 2013 was Global Trade providing the participants with new insights to social and political issues of international relevance in addition to fostering inspiration and cooperation amongst the global student com-





WORKSHOP ON HIGH PERFORMANCE COMPUTING FOR SCIENTISTS

Organized by the Many/Multi - Core Research Group, UoM

A workshop on “High Performance Computing for Scientists” was organized by the Many/Multi-Core Research Group of University of Moratuwa (www.mrt.ac.lk/hpc/). This university-wide multi-disciplinary research group operates GPU-based advanced computing facilities and carry out teaching and research in the high performance computing arena. The workshop, held on 19th February 2013 at the Engineering Faculty

Boardroom, had as its main objective the initiation of an interdisciplinary dialogue between non-computational and computational sciences on how high performance computing can be leveraged to address their research problems. The target group for the workshop included researchers and graduate students in all disciplines and presentation were made by Prof Gihan Dias, Prof Sanath Jayasena, Dr Dilum Bandara, Dr Lochandaka Ranathunga, Dr Mahinsasa Narayana, Mr Sandun Gajaweera, Dr Jayathu Samarawickrama fol-

lowed by a discussion on research collaboration.

INTERDISCIPLINARY

DIALOGUE BETWEEN

COMPUTATIONAL &

NON-COMPUTATIONAL

SCIENCES



UOM WINS

FIRST AND

SECOND

POSITIONS

UOM WINS AT MINDSPARK 2013

Two teams of undergraduates from the University of Moratuwa competed at the “Mind Spark” Robot Competition 2013 organized by the Faculty of Engineering of Aquinas University College on 23rd January 2013 at the Don Peter Auditorium of the institution in Borella.. The first place was won by the team “Wolf” comprising of Aruna Upul (ENTC), Chameera Wijebandara (CSE), Tharindu Amila (CSE), and Rasitha Pradeep (CPE). The second place was won by the team “Nishshankamalla” comprising of Sudheera Palihakkara (CSE), Subodha Charles (ENTC), Buddhima Gamlath (ENTC), Dilshan Gamage (ENTC), Samitha Elvitigala (ENTC).

The competing teams had to design and build a robot that must navigate a playing field by avoiding stationary obstacles and walls and detecting lines and directional arrows leading to a given goal. The arena consisted of a line following and obstacle detection stage, an arrow following stage, and as a novelty in Sri Lanka a maze solving stage. The robots designed by both teams successfully navigated each stage with speed and accuracy.

ADVANCE WORKSHOP ON AGILE ENGINEERING AND SOFTWARE CRAFTSMANSHIP

The Department of CSE, in collaboration with its industry partner ExileSoft (Pvt) Ltd, the local R&D center of ExileSoft AS of Norway, conducted an advance workshop on Agile Engineering and Software Craftsmanship on 24th January 2013 for the undergraduates from '09 and '10 Batches. The trainers at the workshop were Mr Johannes Brodwall, Chief Scientist at ExileSoft, Norway and Mr Thushara Wijewardena, Project Officer at ExileSoft, Norway.

DEPARTMENT OF CSE

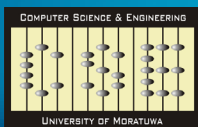
IN COLLABORATION WITH

EXILESOFT (PVT) LTD.



*Mr. Johannes
Brodwall &
Mr. T. Wijewardena
were the trainers”*





DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
UNIVERSITY OF MORATUWA
