

OUTREACH

UNIMAS RESEARCH BULLETIN | Vol.4 No.2 | AUGUST 2010

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- **New Plant Species from Sarawak**
- **Technology to the Rescue: English-Iban Translation**
- **Eco-Composite as Laptop Cooling Pad**
- **Sago Starch for Electrochemical Applications**

Fast Facts on UNIMAS

Date established (incorporated) 24 December 1992
Campus Site Kota Samarahan, Sarawak, Malaysia
(about 25 km from the city of Kuching,
the capital city of Sarawak)

Present Vice Chancellor Prof Dr Khairuddin Ab Hamid

Student Enrolment (Academic Session 2010/2011)	Undergraduate	7,285
	Postgraduate	889
	Total	8,174

Full time staff	Academic	723
	Management	160
	Support	1134
	Total	2017

Faculties

Faculty of Applied and Creative Arts (FACA)
Faculty of Cognitive Sciences and Human Development (FCSHD)
Faculty of Computer Science and Information Technology (FCSIT)
Faculty of Economics and Business (FEB)
Faculty of Engineering (FE)
Faculty of Medicine and Health Sciences (FMHS)
Faculty of Resource Science and Technology (FRST)
Faculty of Social Sciences (FSS)

Institutes

Institute of Biodiversity and Environmental Conservation (IBEC)
Institute of East Asian Studies (IEAS)
Institute of Health and Community Medicine (IHCM)

Centres

Centre for Language Studies (CLS)
Centre for Academic Information Services (CAIS)
Centre for Student Development (CSD)
Centre for Technology Transfer and Consultancy (CTTC)
Centre for Information and Communication Technology Services (CICTS)
Centre for Applied Learning and Multimedia (CALM)
Research and Innovation Management Centre (RIMC)
Centre for Graduate Studies (CGS)

Centres of Excellence

Malaria Research Centre
Centre for Water Research
Centre for Rural Informatics
Centre for Renewable Energy
Centre for Image Analysis and Spatial Technologies
Centre for Semantic Technology and Augmented Reality
Centre of Research for Sago Palm

International Linkages

54 International Partners Worldwide

Centre for Academic Information Services

Volume of Books	121,951
Sets of Media Materials	8,036
Journal Titles (Print and Electronic)	18,458

Editorial Committee

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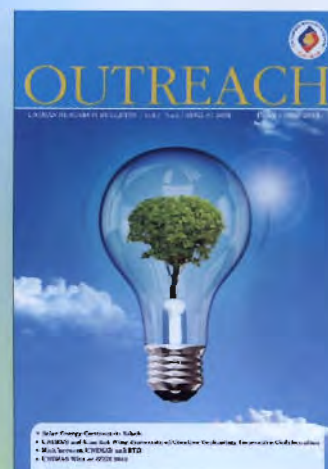
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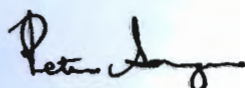
ISSN 1985-2053



Introduction to This Issue



I would like to begin by congratulating the researchers from UNIMAS who have managed to secure awards at the International Invention, Innovation and Technology Exhibition (ITEX) on 14-16 May 2010 which was organised by the Malaysian Invention and Design Society (MINDS) from 14-16 May 2010 at the Kuala Lumpur Convention Centre. It has been a fruitful entry for UNIMAS with 3 gold medals, 14 silver medals and 3 bronze medals secured from a total of 24 showcased products. Therefore, highlighted in this issue are some of the award winning researches, as well as other research works and activities by UNIMAS in this early half of 2010. It has been a notable half-year journey for UNIMAS and I hope we will continue to improve on our momentum in the months ahead.



Prof Peter Songan

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RESEARCH NEWS

Solar Energy Contract in Sabah

In a Contract Grant signing ceremony on 10 March 2010, UNIMAS was given an additional grant amounting to RM172,190.93 by the Japanese Government for a solar energy electrification system in an island of the east coast of Sabah. The signing ceremony was attended by Japan's Consul-General for Sabah, Sarawak and Labuan, Masahi Kono, who explained that the financial aid was granted to projects designed to meet the diverse needs of people in developing countries through the Grant Assistance for Grassroots Human Security Projects (GGP). The project will be implemented by the Centre of Excellence for Rural Informatics, University Malaysia Sarawak, who will use the grant to develop solar energy electrification system in Larapan Island in an effort to improve the living condition in the area.



UNIMAS and Lim Kok Wing University of Creative Technology Innovative Collaboration



An MoU between UNIMAS and Limkokwing University of Creative Technology was signed on 25 February 2010 to research and develop Augmented Reality technology. The collaboration is for the development of the technology

to support the generation of data for real-world application in education, entertainment, military and emergency service.

UNIMAS is currently one of a few universities in Malaysia with expertise in the area of Artificial Intelligence; three departments from three different faculties currently support research in this technology. Limkokwing's contribution will be on consumer research, content development and the development of consumer application.

MoA between UNIMAS and RTD



An MoA between UNIMAS and Sarawak Public Works Department (PWD) to collaborate on a joint project was signed on 31 May 2010. The joint project, 'Sustainable Instream Horizontal Micro Hydro Turbine Generator' is the first between PWD and a Public Institutions of Higher Education. This project will realise a new strategy in the exploitation of Sarawak's river potentials in an effort to generate renewable and environmentally friendly green energy. The research project will assist the government in reducing the cost of providing basic amenities to the rural areas and will specifically benefit the rural schools.

UNIMAS Wins at ITEX 2010

Researchers from UNIMAS recently participated at the International Invention, Innovation and Technology Exhibition (ITEX) on 14-16 May 2010, organised by the Malaysian Invention and Design Society (MINDS) from 14-16 May 2010 at the Kuala Lumpur Convention Centre. This year's ITEX 2010 managed to gather the most number of inventions from universities, research institutions, individual inventors and corporate companies. UNIMAS won 3 gold medals, 14 silver medals and 3 bronze medals from a total of 24 showcased products.



New Plant Species From Sarawak

Researchers: Meekiong Kalu, Prof Dr Isa Bin Ipor, Assoc Prof Dr Cheksum Tawan



Borneo was claimed by many as one of the centre for plant diversity. Estimation of flowering plants in the whole of Borneo gave an astonishing range of 10,000 to 12,000 species, which is equivalent to about 6% of the world total and it was also estimated that 50 – 60% of these numbers is restricted to this island. The many botanical excursions which were conducted in Sarawak since 1880s had discovered many new species with cumulative estimation of two new species per day.

And since the establishment of the Faculty of Resource Science and Technology in UNIMAS in 1993, the researcher at UNIMAS have gone on to discover various new species where in the last five years alone, UNIMAS has described 19 new species in Sarawak. Among the described is *Alpinia epiphytica*, the only species in the genus so far recorded with epiphytic habit and was discovered at Lanjak Entimau Wildlife Sanctuary.

Another species which is strictly restricted to Borneo is *Costus eburneus* which so far, is only recorded from one isolated limestone area in Bau. Two *Begonia* sp, *Begonia hidiri* and *Begonia kurakura* were discovered at Gunung Murud and Lanjak Entimau Wildlife Sanctuary, respectively. The latter named for the shape of their leaves which resemble tortoise shell and are apparently consumed by this shell creature.



RESEARCH HIGHLIGHTS

Indigenous Knowledge and the Development of the Bisitang Bidayuh Community

Researchers : Assoc Prof Dr Ling How Kee, Dr Ahi Sarok, Juna Liau, Tracy Peter

Indigenous knowledge, which refers to 'the unique, traditional and local knowledge existing within and developed around specific conditions of women and men indigenous to a particular area' can be harnessed as a 'tool' in forging a sustainable community-based development process.

Therefore, a study of the Bisitang community, a sub-group of the Bidayuh ethnic group in Sarawak, was conducted by the Faculty of Social Sciences to identify the role of indigenous knowledge in promoting and sustaining community development. It also explored how and in what ways indigenous knowledge can be employed to deal with development issues and challenges to the community.

The research involved both

quantitative and qualitative data collection methods. Various areas of indigenous knowledge such as family life, community networks, land use and farming practices, indigenous language and mother-tongue education, system of governance and grassroot-level management, natural resource management, health and healing were studied.

The Bisitang community comprises 11 villages (*kampung*) in Padawan with a population of about 12,000 people. In spite of, or perhaps because of, its close location to the satellite town (Kota Padawan) which is ten miles from the capital city (Kuching), little research has been conducted to understand the socio-cultural transformation of the community as a result of development.

As indigenous knowledge is embedded harmoniously in everyday village life, the findings of this study stress the importance of designating some of the forest area surrounding the villages into forest reserve. Furthermore, development projects in the vicinity of the villages need to take into account the aspirations of the people to ensure that the communities benefit from the development process. Other findings of the study include the need for basic amenities such as clean water supply, upgrade of educational facilities and the inclusion of mother-tongue education.



Superparamagnetic Nanoparticles for Biomedical Application

Researcher: Dr Chin Suk Fun, Assoc Prof Dr Pang Suh Cem, Dr K. Swaminathan Iyer, Prof Colin L. Raston

Superparamagnetic iron oxide nanoparticles (SPIONs) consisting of maghemite ($\gamma\text{-Fe}_2\text{O}_3$) or magnetite (Fe_3O_4) have attracted much interest in biomedical applications for their magnetic characteristic. The practical applications of SPIONs' in biomedical, however, strongly depends upon their stability in physiological conditions and the extent of their surface manipulations. Bare SPIONs are not stable and tend to aggregate in the aqueous solution of normal physiological conditions due to the strong magnetic attraction between the nanoparticles.

Therefore, any attempts to incorporate these nanoparticles in biomedical applications require their stabilisation in physiological conditions and their surface modification which would allow them to bind material such as

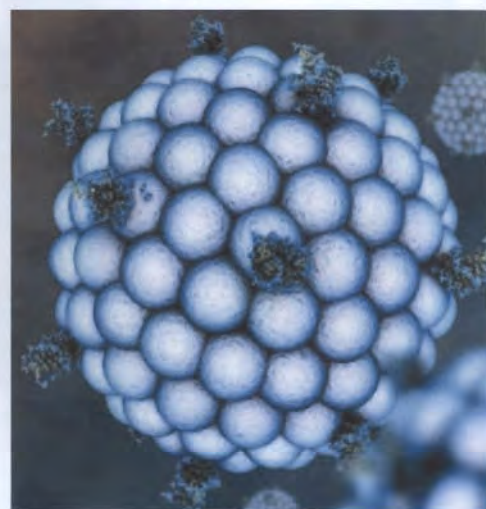
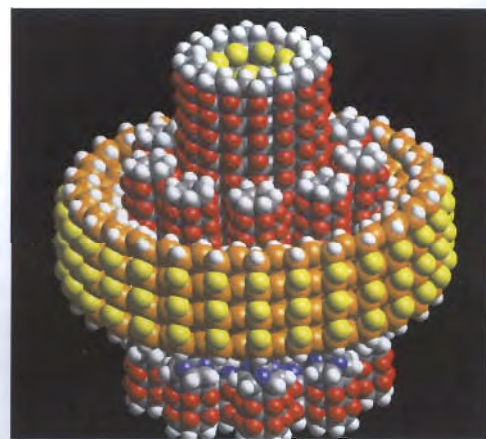
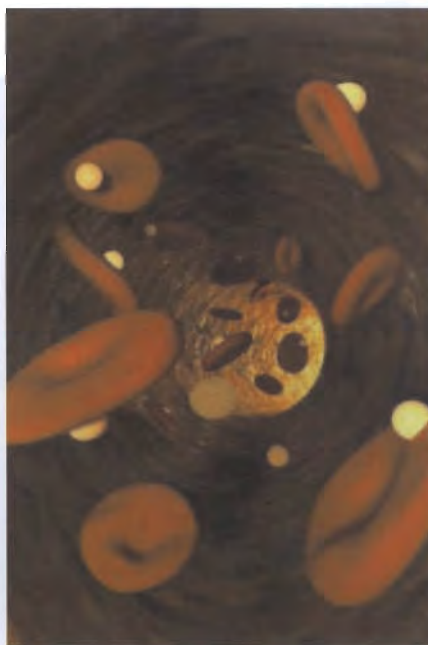
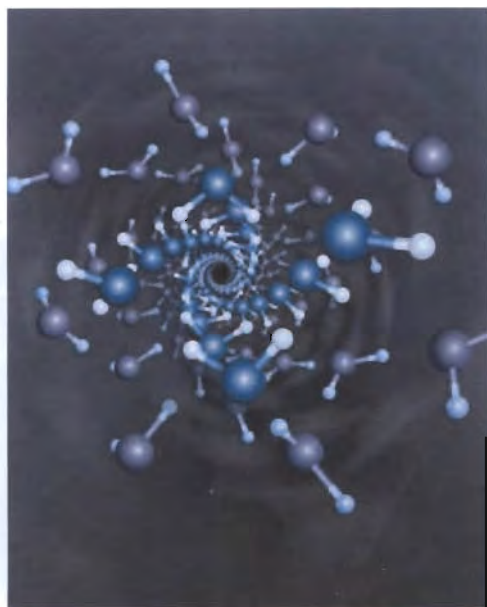
drug molecules and also act as an interactive drug carrier. Hence, with the right manipulations, SPIONs can be the transporter molecules in magnetic guided drug delivery, specific targeting and imaging of cancer cells, localised heat treatment on solid tumors to destroy cancer cells, and as contrast enhancement agents in magnetic resonance imaging (MRI).

A collaboration between a research group at UNIMAS and researchers from the University of Western Australia has successfully stabilised and functionalised SPIONs in a single step by coating the surface of SPIONs with water soluble sulfonato-calixarenes. Sulfonato-calixarenes are cyclic phenolic oligomers with a hydrophobic cavity that can bind water insoluble drugs molecule.

A green and facile strategic route has also been developed to

coat the surface of SPIONs with metal shells such as gold and silver to impart plasmonic property to the magnetic nanoparticles.

The magnetic and plasmonic properties of these gold and silver coated SPIONs give them great potential for diagnostics and therapeutic applications. Currently, magnetic drug delivery carriers have been fabricated by encapsulating SPIONs and model drugs in silica capsules and nanospheres derived from modified sago starch.



Technology to the Rescue: English-Iban Translation

Researcher: Beatrice Chin, Dr Edwin Mit, Assoc. Prof. Dr Alvin Yeo Wee, Suhaila Saeed

Indigenous Languages in Sarawak are slowly dying as English and the Malay Language is given greater emphasis because of its status as the international and national language, respectively. In addition, with the rural to urban migration of these ethnic groups, many of the younger generation do not speak their own mother tongue.

There are concerns that these languages are likely to become extinct, and with it, a large component of the culture. One of the ways to help revitalise and maintain these indigenous languages is to produce more documents in these languages by translating documents from widely-spoken languages into these indigenous languages.

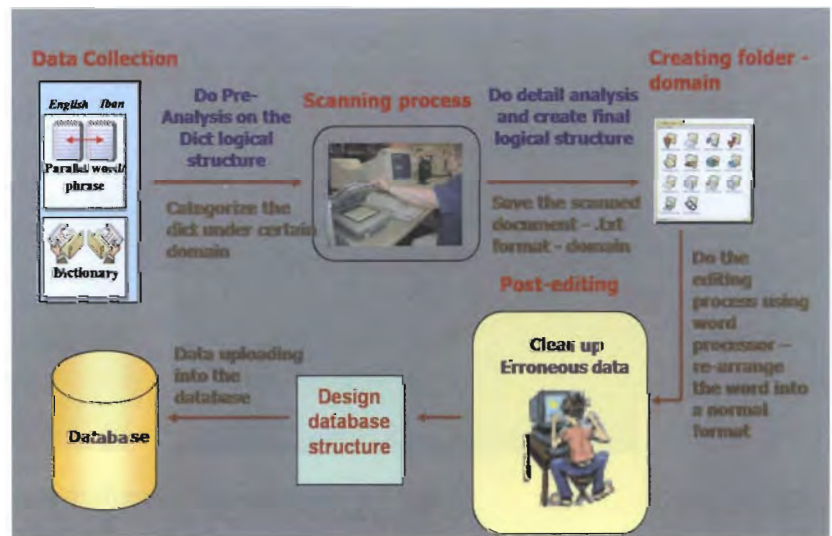
Therefore, by focussing on the Iban language, UNIMAS has embarked on the process of translating various documents in the English language to Iban. The first phase of the programme included the building of an Iban corpus which consist of 1,191,842 words, with 35,279 unique words built from different sources such as newspapers, storybooks, textbooks, literature books, dictionaries and magazines. A bilingual knowledge bank (BKB), consisting of 1,700 English-Iban parallel texts, was constructed by getting translators to translate 1,700 randomly-selected English sentences into Iban.

An English-Iban machine translation (MT) was then developed using the Example-based Machine Translation (EBMT) which uses

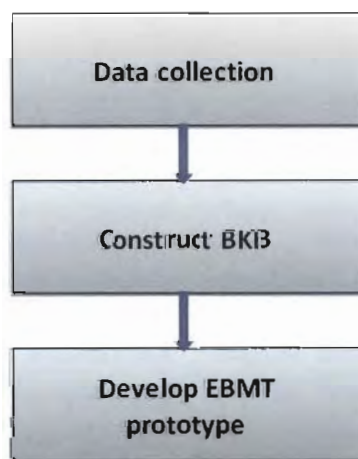
Synchronous Structured String Tree Correspondence (S-SSTC) annotation schema. The translation results were evaluated both by invited speakers of the languages and by automatic evaluation.

Although the current progress with the machine translation is only within acceptable range, the score can

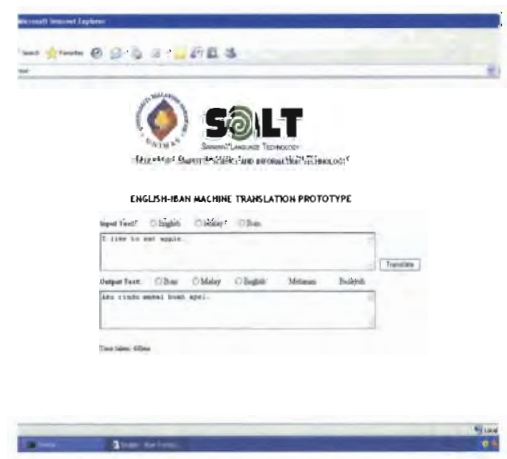
be improved by adding more English-Iban parallel texts in the bilingual knowledge bank. Therefore, the EBMT technique which uses the S-SSTC approach can be used to develop machine translation for English to minority languages such as Iban and other minority languages in Sarawak that are facing similar predicament.



Preparation of Conceptual Diagram



The processes involved in English-Iban MT



English-Iban MT prototype

PRODUCT AND TECHNOLOGY TRANSFER

Eco-Composite as Laptop Cooling Pad

Researcher: Erwandi Junaidi, W.S. Cheong, M. Sawawi, M. Yusof, Dr Mohd Shahril Osman, N.H.N.Mohammad, Dr Siti Noor Linda Taib, S.H. Ibrahim

Modern application of eco-composites (a combination of fiber and matrix material) have increased in recent years especially for European automotive components. In Malaysia, however, their commercial use is limited to lower technological products such as mulch, mattresses and car seat cushions. The benefit of using eco-composites is mainly due to their low density, good mechanical performance, unlimited availability and problem-free disposal. This research was conducted to evaluate the potential of replacing the synthetic materials used in laptop Cooling Pad

with eco-composites of either banana fiber or oil palm empty fruit bunch fiber and polyester matrix. This study showed that the banana and oil palm fruit bunch composites have much lower thermal conductivities compared to perspex and aluminium cooling pad, and when chemically treated, the polyester/banana outweigh the other two with its better heat conduction properties. In terms of cost, the estimated cost for the eco-composite cooling pad is 3 to 4 times cheaper than the aluminium and Perspex cooling pad.



Eco-composite cooling pad

Agricultural Waste Recycling and White Pepper Production

Researcher: Dr Awang Ahmad Sallehin Awang Husaini, Dr Hairul Azman Roslan, Dr Mohd Hasnain Md Hussain, Frazer Midot, Zendher Mercer Jaroop

An indigenous fungal isolate (*Aspergillus spp.* A6) was selected for the production of pectinase, a natural biological molecule (enzyme) which can speed up the retting process in white pepper production. The fungal isolate was earlier grown through solid substrate fermentation of agricultural waste where sugarcane pulp was used as the inert solid support whereas pineapple, orange, and banana peel, as well as pepper waste, were explored as the

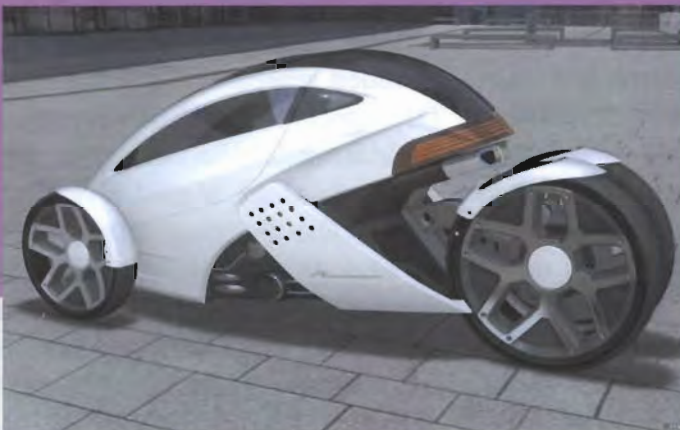
possible fungal carbon source. Banana peel came out as the best fungal carbon source as its fermentation produced the highest pectinase enzymatic activity. Laboratory scale enzymatic retting using the crude pectinase showed that the enzymatic retting is far more productive than the conventional water retting as it was able to give a yield of about 90% white pepper in about four days compared to at least 7-14 days with the latter.

Auto Motor

Researchers: Dr Saiful Bahari B Mohd. Yusoff, Shaharudin Busri (MIMOS)

In collaboration with MIMOS, a researcher from UNIMAS is proposing an environmental friendly vehicle or 'Go Green' as an alternative short distance transporter. Dubbed the "Auto Motor", this four wheeler electric vehicle is designed to address the environmental issues related to human daily commuting activities. Auto Motor is an environmentally friendly hybrid and would fill a new market segment for vehicles: a combination

of automobile and motorbike. As the main concept is fun ride, it offers stability and fun driving in a stylish design. The main rider is positioned outside the vehicle's main body while the passenger sits in a spacious space at the inner side of the vehicle frontal part. In the absence of a passenger, the empty space can be transformed to a storage compartment.



Sago Starch for Electrochemical Applications

Researchers: Assoc Prof Dr Pang Suh Cem, Dr Chin Suk Fun, Tay Chen Lim

Sago starch is a natural biopolymer and therefore, has the potential to make a biodegradable and renewable precursor material. On the local front, it is found in abundance and is easily available at a low cost. At UNIMAS, a novel starch-based gel electrolyte (SbGE) film of high ionic conductivity was developed by combining sago material with conducting material. The SbGE film constitutes up to 80 wt % native sago starch and 20 wt % plasticiser, and was doped with optimum amount of alkaline metal salts to give it the conducting ability.

This SbGE film exhibited comparatively high ionic conductivity at room temperature. With simple preparative processes, these films are not only cheap to produce but possess high potential use in various electrochemical device applications such as rechargeable batteries, supercapacitors, fuel cells, electrochromic devices and sensors.

NETWORKING

Sarawak Dolphin Project goes to Bangladesh

In May 2010, a member of the Sarawak Dolphin Project, Cindy Peter was given the opportunity to visit the Bangladesh Cetacean Diversity Project (BCDP). The aim of the visit was to share experiences and to gather knowledge of how other researchers are working in similar environments with the same species. This opportunity was made possible through funding obtained from the Ocean Park Conservation Foundation, Hong Kong (OPCFHK).

Cindy was given the opportunity to join a survey group at the Eastern Sundarban Reserved Forest, Bangladesh where they carried out interview surveys, documentation of human activities and environmental sampling and dolphin surveys. Working in a low-cost set-up with minimal resources, but with a dedicated BCDP research team, the Bangladesh researchers showed that conservation is not always about big funding and fancy equipment. It is essential to work closely with the communities who share their livelihoods and resources with the dolphins if we hope to protect the dolphins and their habitat. Such experiences will definitely help to enrich the Sarawak Dolphin Project, which anticipates continued cooperation and exchange of ideas and experiences with the BCDP.

UNIMAS and FUDA MoU

An MoU between the Faculty of Medicine and Health Sciences (FMHS), UNIMAS and the FUDA Cancer Hospital, China was signed on 5 February 2010. Under the MoU, selected medical students from UNIMAS will be given the opportunity to undergo a free five-week intensive training programme at FUDA Cancer Hospital. FUDA will also sponsor a representative from UNIMAS to the 2010 International Medical Seminar in China.

MoU between UNIMAS and Qinghai Normal University

An MoU between UNIMAS and the Qinghai Normal University (QNU), China was signed on 10 May 2010. Under the MoU, UNIMAS will undertake a student exchange programme with UNQ and collaborate in matters that involve expertise, research and ideas. For a start, UNIMAS will take 50 students from QNU, and in research, UNIMAS and QNU will identify relevant areas such as environmental issues and disease control.

Meiji University Delegation at UNIMAS

Delegates from Meiji University, Japan, visited UNIMAS on 2 February 2010 to further strengthen the collaboration forged between the two universities. The Japanese delegates were headed by Prof. Osamu Ono, Assoc. Prof. Dr. Sotaro Shimada and Dr. Kazayuki Morioka, and included representatives from the Department of Electronics and Bioinformatics, School of Science and Technology, Meiji University.

The meeting touched on collaborations between UNIMAS and Meiji University in areas such as teaching and learning, research and development, as well as cultural exchange. The establishment of a research laboratory for UNIMAS and Meiji University was mooted by Prof Dr Khairuddin, the Vice Chancellor of UNIMAS during the meeting.

STAKEHOLDER SPEAKS

For Knowledge and Community Empowerment



Professor Michael Gurstein

I recently had an opportunity to visit with the staff and students of the Centre of Excellence for Rural Informatics (CoERI) and also the CoERI projects in both Bario and Long Lamai. The Long Lamai project, I am informed, is being undertaken by COERI to “replicate” the success of the eBario project.

eBario, a project done in bringing the Internet into a previously very (physically) isolated community and then providing continuous and very effective and creative support for them has matured. In this context, I had the chance to observe how eBario was providing the local people in Bario with tools and strategies to respond to the external pressures and develop the capacity and means to initiate processes of internally driven self-development and overall

management of the development processes.

For the people of Long Lamai, however, the process is just beginning. But by providing access to internet, the communities are visibly being empowered; through not only the access to the technology but also through the process by means of which they are being assisted in coming to use the technology. And the team has shown their sensitivity to local concern by following a strict (and sensitive) protocol of local engagement which although made the process more complex and lengthy, it is ultimately more sustainable since the community insisted on all decisions being made by a formal process of community consensus.

While this is interesting, it is hardly surprising in the broad context of the institutionalisation of successful research in a university environment. What is novel, however, is the way in which after having realised a successful symbiosis with community informatics, CoERI is now in the

process of making what seems to be a very substantial contribution to community informatics research (and not incidentally theory) and is also beginning a reframing of the manner in which community informatics becomes institutionalised in a university setting and even more significantly in reframing that university setting itself.

Where knowledge building is concern, the influence and benefits flow both ways where community informatics will benefit from an infusion of new subject areas and methodologies of research, and the other disciplines will benefit from having to deal with the practice (and theory) of community based ICTs. And in the eye of the community, a university has truly lived up to its name of being the guardian and builder of knowledge—to disperse and apply knowledge that has visible benefits to the community.

Professor Michael Gurstein, Director of Community Informatics Research, Development and Training, Vancouver, Canada

RESEARCH CONSULTATION GROUP

The Centre of Excellence for Renewable Energy

The Centre of Excellence for Renewable Energy was established in 2009 to strengthen and rationalise UNIMAS research and develop renewable energy technologies. CoERE, therefore, is dedicated to accelerating the deployment and grid integration of renewable energy and low carbon generation technology through the utilisation of various energy sources.

This strategic research effort is in line with the increasing technological demand on our ecology. The development of technologies for alternative energy could help reduce the demand

on non-renewable fossil energy which would lead to energy and resource savings and consequent preservation of the environment.

To support this, CoERE is grouped into several teams working on developing clean energy systems. Specifically, the research spearheaded by COERE is divided into various energy groups: wind, tidal wave, biomass, hydro power, solar PV and solar thermal energy.

The strategy is to establish a multidisciplinary team of researchers and scientists to focus on the research and development aspects in an effort to provide not only solutions to the community but at the same time tackle

related environmental issues.

The team welcomes the involvement of individuals/organisations/industries who are interested in renewable energy explorations or potentials as well as the preservation of the environment. The team also offers research consultancies to interested parties. Please visit <http://www.coere.unimas.my/> for more information.

The Reconstruction of a Mini Micro Hydro System

In this age of automation and electrical gadgetry, access to electricity is vital for modern living. While the government of Malaysia is trying to fulfill this need, the sparsely populated interior means that not all homes are connected to the state's electric grid and are thus without electricity. Hence, the community of some of the remote villages in Sabah and Sarawak took matters into their own hands by building their own micro hydro systems.

The outcome, however, is not as it should due to limited knowledge, skills and expertise. Therefore, with its team of experts, CoERE has step in to assist some of the villagers to re-engineer, re-invent and re-construct community built micro hydro system which have not been working properly. Kampung Simulong Ulu of the Sri Aman district in Sarawak is one of the beneficiaries of CoERE's assistance.



SEMINARS AND CONFERENCES

2nd Malaysia Joint Conference on Artificial Intelligence

Jointly organised by MIMOS BERHAD and the Centre of Excellence in Semantic Technology and Augmented Reality (CoE-STAR), the Faculty of Cognitive Science and Human Development, and the Faculty of Information Technology, the 2nd Malaysian Joint Conference on Artificial Intelligence (MJCAI 2010) was held on 26-30 July 2010. The focus of the conference was on all the areas of Artificial Intelligence and Cognitive Science research and practical application. It brought together researchers and practitioners in information and computer sciences, artificial intelligence, cognitive science as well as social science to explore novel ways for deploying Artificial Intelligence.

18th International Conference on Conceptual Structures

Jointly organised by MIMOS BERHAD and the Faculty of Cognitive Science and Human Development and the Faculty of Information Technology, the 18th International Conference on Conceptual Structures (ICCS 2010) was held from 26-30 July 2010 and was the latest in a series of annual conferences that have been held in Europe, Australia, and North America since 1993.

The focus of the conference was the representation and analysis of conceptual knowledge for research and practical application. It brought together researchers and practitioners in information and computer sciences as well as social science to explore novel ways for deploying conceptual structures.

Semantic Technology and Knowledge Engineering

Jointly Organised by MIMOS BERHAD and the Centre of Excellence in Semantic Technology and Augmented Reality (CoE-STAR), Faculty of Cognitive Science Human Development and the Faculty of Information Technology, the 2nd Semantic Technology and Knowledge Engineering Conference (STAKE 2010) was held from 28 July to 30 July 2010. The focus of the conference were applied semantic technology, knowledge engineering, semantic based information and engineering system, and methodologies for developing semantic based systems.

3rd International Conference on Solid State Science & Technology 2010

The International Conference on Solid State Science and Technology 2010 (ICSSST2010) which will

be held on 1-3 December 2010 is jointly organised by the Faculty of Engineering and Malaysian Solid State Science & Technology (MASS). The aim of the conference is to provide a discussion platform for academicians and researchers to gather and share the information on solid state science and technology. Topics to be covered in the conference include physical science and engineering. For further information please visit <http://www.feng.unimas.my/icssst2010/>

International Conference on Minority and Majority

The forthcoming International Conference on Minority and Majority: Language, Culture and Identity which will be held at Hilton, Kuching on 23-24 November, 2010 is co-hosted by the Centre for Language Studies, and the Malaysian Association of Modern Languages. The conference will address public policies in the maintenance of group identity through language and culture, and issues pertaining to minority communities. It is hoped that the conference will provide a platform for scholars and parties concerned to voice their views and engage in research collaboration for the sustenance of minority cultures and languages. For further information, please visit: <http://www.cls.unimas.my/event/conference/icmm.html>

PUBLICATIONS

Books

1. Gusni Saat, 2010. *Dalam Kanca Urbanisasi: Komuniti Sama-Bajau Teluk Bone Sulawesi Selatan*, UNIMAS Publisher



2. Mohd Tajuddin Abdullah, Wong Siew Fui, Besar Ketol, 2010. *Catalogue of Mammals of UNIMAS Zoological Museum*, UNIMAS Publisher
3. Ann Appleton, 2010. *Speak Melanau Mukah, An English-Melanau Mukah word and Phrase List*, UNIMAS Publisher
4. W Beavitt, Dr A A Tuen, 2010. *Swamp Kuching Wetlands National Park*, UNIMAS Publisher
5. Maung Maung Nyo, Nan Omar, 2010. *Essentials of Integrated Anatomy*, UNIMAS Publisher
6. Peter Songan, Gabriel Tonga, Mustapha Abdul; Rahman, Hong Kian Sam, Lily Law, 2010. *Factors Influencing Students' Seletion of Universiti Malaysia Sarawak*, UNIMAS Publisher
7. Wan Hashim Wan Ibrahim, 2009. *Land Based Transport Systems: Related Issues & Improvement Strategies*, UNIMAS Publisher
8. Rujhan Mustafa, 2009. *Pembangunan Ekonomi Integrasi Asia Timur*, UNIMAS Publisher

International Journal Papers

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