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RESEARCH THAT IMPACTS LIVES



THANKS to a number of groundbreaking studies conducted by the University of Malaya (UM), the public will be able to benefit from a variety of research applications ranging from inexpensive cartilage repair, quicker detection of diseases, data to enhance reproductive health and online as well as homeland security protection systems.

UM's fruitful findings will be showcased alongside other equally useful research by a number of institutions of higher learning, both local and international, at the International Exposition of Research and Inventions of Institutions of Higher Learning (Pecipta 2009). Organised by UM, the event will be held from Oct 8-10 at the Kuala Lumpur Convention Centre in KL.

UM is highlighting five major research projects in a variety of categories, namely:

- Biosciences and Biotechnology
- Health and Allied Sciences
- Information and Communication

Technology

- Physical Sciences and Engineering
- Social Sciences and Humanities

The diversity of research shows UM's commitment to be a major contributor of technological, educational, social and economic benefits to society.

New therapy

UM's research findings, although diverse, generally aim to improve health and security across all levels of society.

In a new therapy for patients who need to undergo cartilage repair – such as those suffering from severe knee- or shoulder-joint problems – cartilage tissue from an unconventional source has been engineered.

This source offers patients a novel, less invasive, less expensive and less traumatic type of therapy. Researchers working on this

project include Assoc Prof Dr Tunku Kamarul Zaman, Assoc Prof Dr Veera Sekaran Nadarajah, Assoc Prof Dr L. Selvaratnam, Pan-Pan Chong, Dr Cheh-Chin Tai, Dr Azlina A. Abbas, Dr Azuran binti Mansor, Datuk Prof Dr Tunku Sara, Mun-Theng Quan and Liang-Xin Tay.

Results from a study on the early detection of diseases have also proved fruitful. This project promises to do two things: speed up the detection of Salmonella (a type bacteria that is a major cause of food poisoning) and making the test cheaper, more readily available and more specific.

As this test is faster than previous tests of such nature, it can reduce serious complications and mortality from such illnesses as typhoid and para-typhoid fevers. This project was led by Prof Dr Thong Kwai Lin with team members Cindy Teh Suan Ju, Dr Chua Kek Heng, Dr Patricia Lim Kim Chooi and Prof Dr Ong Kok Hai. This project won a gold medal at the UM Research, Invention and Innovation Expo 2008.

Security

Online security poses an ever-growing problem in this increasingly wired world.

Many Internet users don't really know how to protect vital information when making transactions or communicating online.

Standalone security software application, WhiteSteg, enables users to be connected safely via a public communication channel (such as the Internet, wireless, Bluetooth, etc.) by embedding a secret message or file into an innocent-looking cover-text.

This application can be used to maintain the information confidentiality, and more importantly to safeguard it from possible

interception, theft, or unauthorised viewing. It can be used with Linux, Mac OS, or Windows OS, to hide sensitive information such as passwords, pin numbers, or anything else. WhiteSteg can embed any kind of data files into cover-text. WhiteSteg allows the user to either choose to let the system generate the cover-text automatically or to personalise a desirable cover-text. It even allows users to encrypt the hidden text with a personalised password.

This project was developed by Por Lip Yee and his team members comprising both researchers and students, namely, Chee Kok Onn, Zaidi Razak, Ang Tan Fong, Delina Beh

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Mei Yin and Ong Sim Ying. WhiteSteg was a gold medal winner at ITEX 2009 and has contributed towards increasing the level of information security in Malaysia.

Another leading researcher, Dr. Faisal Rafiq Mahamad Adikan, is working on creating the world's first glass-based, low-cost, flexible, extended length optical chip. This "Flat Fibre" combines the advantages of optical fibre technology and integrated optical chips.

Although the chip is new, it uses established optical fibre manufacturing techniques, making it attractively cheap to produce. This makes it inexpensive and ideal for use in vital areas such as wide deployment sensor applications for homeland security. The usefulness of this product has been recognised both locally and internationally.

At the recent UM Research, Invention and Innovation Expo 2009 it was judged "Best of the Best" and "Best for Engineering and Physical Sciences." It was also awarded a

silver medal at the Malaysian Technology Expo (MTE 2009), as well as winning Britain's House of Commons section prize for "Best Engineering Research in 2006."

Reproductive health

Research on social needs and living conditions is equally important. The national study on the reproductive rights as well as sexual and reproductive health of women, seeks to gather data on issues such as pregnancy, family planning, HIV/AIDS, health services, domestic violence and reproductive rights. Once complete data from a wide variety of sources has been gathered, policy-makers can use the crucial information to formulate policies.

UM has also set up a commercial arm to ensure that both society and the university benefit from such research projects. The Universiti Malaya Centre of Innovation and Commercialisation (UMCIC) helps to facilitate

and support the transfer and commercialisation of R&D technology through its own start-up companies or with private sector partners.

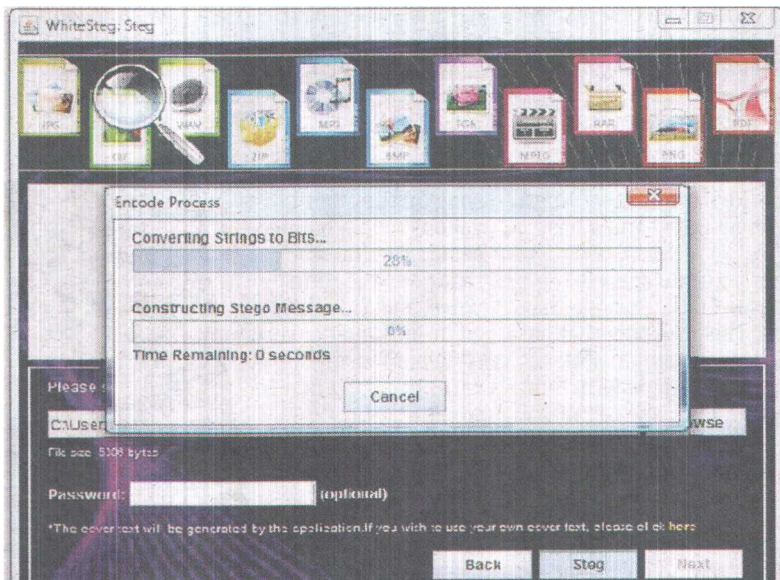
International Patents

To date, UMCIC has filed 181 patents with a total of 136 Malaysian Patents (16 Patents granted) and 45 International Patents (three Patents granted). Another 30 International Patent applications are pending.

From 2006 to 2009, UM commercialised 21 research products. Furthermore, UM has also compiled 110 technology and research products from various disciplines, which have the potential to be commercialised.

Clearly, University of Malaya is increasingly harnessing its research capabilities in order to benefit society in a meaningful way.

For details, please go to <http://pecipta09.um.edu.my>. You can also contact the PECIPTA 2009 Secretariat at 03-7967 6268 or e-mail pecipta09@um.edu.my



WhiteSteg is a text steganographic tool. It has the capability to embed any kind of data files into cover-text to protect sensitive information or data.