

Waking Up to the Threat of Cybercrime

Cybercrime is the world's biggest growth industry and is now costing an estimated US\$220 billion loss to companies and individuals each year.

That was the definitive message delivered by Metropolitan Police Assistant Commissioner Tariq Ghaffur at the 2nd International Conference on Global e-Security (ICGeS) in April 2006. The conference was organised at the University of East London (UEL) by leading information security professional Dr Hamid Jahankhani, the man responsible for UEL's innovative and expanding range of programmes in information security and computer forensics.

Leading academics such as Dr Jahankhani and his colleagues are pioneers in developing the context and frameworks for internationally recognised information security systems and computer forensics. He is consulted internationally on global information security issues and is the author of articles on the criminal investigation and forensics analysis of 3G mobile phones. Dr Jahankhani's expertise contributes directly to the latest in industry innovation, as well as to the unique degree programmes offered exclusively at UEL.

He is also as aware as anyone of how limited appreciation of the immense capabilities of everyday hand-held objects is driving collective inertia in the battle against cybercrime.

"Technology is advancing so rapidly," says Dr Jahankhani, "that few people ever realise the complexity or awesome power of something as seemingly commonplace as a 3G mobile phone. Obviously, improving technology brings huge benefits, but it can also be used for fraud, murder, e-mail harassment, violating company policies, uncovering sensitive information and terrorist plotting.

"The menace of organised crime and terrorist activity grows ever more sophisticated as the ability to enter, control and destroy our electronic and security systems develops at an equivalent rate".

Nations, governments, corporations and individuals are all under threat. New telecommunications developments including the Internet have created

faceless, borderless virtual marketplaces that are home to a new breed of criminals. Innocent people are increasingly falling victim to confidence-trick telephone calls, encounters calculated to extract bank or personal details and computer spyware enticing them with offers of non-existent free gifts while copying confidential files.

"In many ways," says Dr Jahankhani, "cybercrime is no different to more traditional crime – both involve identifying targets, using surveillance and psychological profiling. The major change is that the perpetrators of cybercrime never actually have to be at the scene of the crime. The traditional idea of a criminal gang loses its meaning as members can now reside on different continents without ever having to actually meet."

Kevin Orme is a Detective Sergeant with the Metropolitan Police. Over the past 26 years, he has served on the fraud squad, in financial investigation teams and as a surveillance instructor, as well as undertaking countless crime scene searches and examinations. With the fight against cybercrime rapidly escalating, DS Orme has recently enrolled on UEL's ground-breaking MSc in Information Security and Computer Forensics in order to achieve his ambition of serving on the Met's high-tech crime unit.

"Currently, there is a shortfall of suitably trained personnel to deal with the rise of cybercrime," says DS Orme. "With my substantial investigative experience enhanced by the knowledge gleaned from my MSc, I'll soon be able to educate others on

Dr Hamid Jahankhani is Field Leader and Principal Lecturer in Software Design and Development at the School of Computing and Technology. Leading academics such as Hamid and his colleagues are pioneers in developing the context and frameworks for internationally recognised information security systems and computer forensics. Hamid's expertise contributes directly to the latest in industry innovation as well as to unique degree programmes, offered exclusively at the University of East London. With his own Masters and professional Doctorate in Information Security and Computer Forensics, Hamid stresses the importance of education in order to arm and deliver the next generation of future experts to tackle our global security issues. Dr Jahankhani is consulted internationally on global information security issues. He is research champion in the Innovative Informatics research group at UEL's School of Computing and Technology and currently directs the research of six PhD students particularly in the areas of security management, cryptography, computer security and trust. Dr Jahankhani is the Editor-in-Chief of the *International Journal of Electronic Security and Digital Forensics* published by Inderscience and general chair of the annual International Conference on Global e-Security (ICGeS), www.icges.org. He is also a member of the programme committee of the ECIW-06, The 5th European Conference on Information Warfare, ICEIS 2003-08, International Conference on Enterprise Information Systems, SECRIPT 2006 International Conference on Security and Cryptography, WDFIA 2006 Workshop on Digital Forensics and Incident Analysis, and the International Conference on Information Science and Security. He has edited and contributed to several books and has over 60 conference and journal publications.

the practicalities of computer forensics and information technology techniques and the significance of legal matters.”

The MSc in Information Security and Computer Forensics is part of a range of UEL degree programmes specifically designed to train and educate professionals in information security and digital forensics. The UEL programmes, which also include a BSc in Information Security Systems and a Professional Doctorate in Information Security, are constantly updated to meet the changing needs and demands of industry.

“UEL is one of the very few universities that offer training in this important field,” says DS Orme. “They are constantly refining and developing their programmes in order to meet the changing requirements of industry and organisations. The flexibility of their programmes also extends training opportunities to people from all walks of

gathered from both lecturers and fellow students. The UEL programme also brings major benefits to wider industry as it increases the profile of information security and highlights the importance of having well-trained staff working to protect corporate assets.

“Industries and businesses should approach organisations like the University of East London because it gives them an opportunity to access best practice and bring new ideas and ways of thinking to the industry. The Global e-Security conference held annually at UEL provides the perfect forum for this, bringing together professionals from different industries, providing cross-industry knowledge exchange and developing employees to better complete their current and future roles.”

One of the key aspects of DS Orme’s and Mr Low’s innovative MSc programme is learning to apply correct forensic principles to gather, secure,

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life. My considerable work experience allowed me to embark on the MSc despite my lack of a formal degree, and I have no doubt that many of my colleagues and representatives from a wide range of industries would benefit immensely from the UEL programmes.”

Darren Low, Information Sharing and Information Security Consultant at Essex County Council, is a fellow student on UEL’s unique MSc Information Security and Computer Forensics.

“Information security offers interesting and exciting career opportunities,” says Mr Low. “I opted for UEL because their programme covered areas that would both help me in the job that I had at the time and allow me to develop my career. Since moving into consultancy I have found that the Msc offers me great opportunities to network with colleagues from other industries and with different areas of expertise.

“Information security is in its infancy within local government, and the MSc programme enables me to take back knowledge and experience

preserve and label digital evidence. With the aid of sophisticated tools and procedures, computer forensics investigators identify and collect digital evidence, including details of the times at which files are created, modified or accessed by users. Evidence usually resides on computer storage media as bytes of data in the form of computer files, and is often beyond the recognition of most computer users.

Digital evidence, as the name implies, is information stored or transmitted in digital form. Courts recognise digital evidence as physical evidence, i.e. a tangible object, such as a weapon or a document related to the crime. Hence, investigators have to perform a variety of tasks when working with digital evidence, including identifying, collecting, observing, preserving, analysing, organising and verifying the evidence.

Once a case goes to trial, computer forensics experts can be called on as technical or expert witnesses. It is crucial that judges, lawyers and juries can rely on the professionalism, integrity and diligence of experts giving forensic evidence. IT professionals involved in

this work require an in-depth understanding of information security and network security measures, as well as of intrusion prevention and detection and forensic analysis for compromised systems.

requirements of industry are varied, challenging and continually changing. With the capabilities, skills and intellectual ability developed through our information security programmes, UEL students

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Furthermore, they must be able to accurately report either orally and/or in writing to colleagues, others within the investigation team and, above all, to the courts of law. Many cases have previously collapsed simply due to a lack of this expertise.

“It is crucial,” says Dr Jahankhani, “to educate and train the next generation of experts to tackle our global security issues. Computer security is at the very forefront of the knowledge explosion and the

will become a valuable component of future investment in the field.

“With the face of global security ever-changing, it’s essential to stay one step ahead. We need to keep our finger on the pulse and constantly innovate.” ■

For further information on UEL’s unique programmes in information security and computer forensics, contact Dr Hamid Jahankhani on hamid.jahankhani@uel.ac.uk or visit www.uel.ac.uk/scot/programmes

DEGREES IN INFORMATION SECURITY

With skills in information security, digital forensics and compliance increasingly in demand, UEL’s innovative degrees can help you develop your career in these key fields. Delivered in brand-new, purpose-built facilities at our Docklands Campus, close to Canary Wharf, the programmes consolidate UEL’s position as a leader in this exciting sector.

BSc Information Security Systems (full/part-time)

Covers both the ‘hard’ end of network systems security and examination of computer systems, and the ‘softer’ security management and assurance.

MSc Information Security and Computer Forensics (Block study)

Developed in consultation with key partners and e-agencies, the programme covers security management, IT and internet law, computer security, and seizure and examination of computer systems.

Professional Doctorate in Information Security (full/part-time)

Our doctorate – the first of its kind – makes a significant contribution to the advanced professional and academic development of information security and compliance.

International Journal of Electronic Security and Digital Forensics (IJESDF)

IJESDF aims to establish dialogue in an ideal and unique setting for researchers and practitioners to have a knowledge resource, report and publish scholarly articles and engage in debate on various security related issues, new developments and latest proven methodologies in the field of electronic security and digital forensics. This includes the measures governments must take to protect the security of information on the Internet, the implications of cyber-crime in large corporations and individuals, vulnerability research, zero day attacks, digital forensic investigation, ethical hacking, anti-forensics, identity fraud, phishing, pharming, and relevant case studies and “best practice” on tackling cyber crime.

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3RD ANNUAL INTERNATIONAL CONFERENCE ON GLOBAL E-SECURITY, ICGES’07

UEL is also proud to host the 3rd International Conference on Global E-Security (ICGES ‘07). The Annual International Conference on Global E-Security was set up to establish dialogue between crime-fighting agencies, the security industry, researchers and experts to create a platform from which e-security can be examined from several global perspectives.

**The conference will take place at our Docklands Campus,
18-20 April 2007 – for details visit www.uel.ac.uk/icges**

Programmes offer February and September starts.
For an application form or details, contact:

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