Authenticatable Visual Secret Sharing

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Research Fields: Database Design, E-Business Security,

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Abstract:

The computer technologies have grown significantly in the past years. More and more multimedia products such as digital cameras have become popular, so digital images are shared and transmitted widely over Internet. However, transmitting secret or important images, such as military or commercial images, over Internet is very dangerous. Malicious users may monitor Internet and try to eavesdrop these valuable images. To protect these images, visual cryptography is necessary for secure communications over Internet. Herein, secret image sharing can be applied to achieve the goal of visual cryptography. In this speech, I will talk about some visual cryptosystems based on the concept of secret image sharing.

As for the topic of secret image sharing, the secret image sharing scheme uses several noise-like images, called shadows, to replace the original image transmitting over the Internet. The shadows can avoid threats from the illegal persons to access the secret image directly. Secret image sharing techniques were proposed to be another branch outside traditional cryptographic techniques and steganography. Based on sharing secret images, visual cryptography for binary images, grayscale images and color images will be introduced.

Biography:

Professor Chin-Chen Chang obtained his Ph.D. degree in computer engineering from National Chiao Tung University. His first degree is Bachelor of Science in Applied Mathematics and master degree is Master of Science in computer and decision sciences. Both were awarded in National Tsing Hua University. Dr. Chang served in National Chung Cheng University from 1989 to 2005. His current title is Chair Professor in Department of Information Engineering and Computer Science, Feng Chia University, from Feb. 2005.

Prior to joining Feng Chia University, Professor Chang was an associate professor in Chiao Tung University, professor in National Chung Hsing University, chair professor in National Chung Cheng University. He had also been Visiting Researcher and Visiting Scientist to Tokyo University and Kyoto University, Japan. During his service in Chung Cheng, Professor Chang served as Chairman of the Institute of Computer Science and Information Engineering, Dean of College of Engineering, Provost and then Acting President of Chung Cheng University and Director of Advisory Office in Ministry of Education, Taiwan.

Professor Chang's specialties include, but not limited to, data engineering, database systems, computer cryptography and information security. A researcher of acclaimed and distinguished services and contributions to his country and advancing human knowledge in the field of information science, Professor Chang has won many research awards and honorary positions by and in prestigious organizations both nationally and internationally. He is currently a Fellow of IEEE and a Fellow of IEE, UK. And since his early years of career development, he consecutively won Institute of Information & Computing Machinery Medal of Honor, Outstanding Youth Award of Taiwan, Outstanding Talent in Information Sciences of Taiwan, AceR Dragon Award of the Ten Most Outstanding Talents, Outstanding Scholar Award of Taiwan, Outstanding Engineering Professor Award of Taiwan, Chung-Shan Academic Publication Awards, Distinguished Research Awards of National Science Council of Taiwan, Outstanding Scholarly Contribution Award of the International Institute for Advanced Studies in Systems Research and Cybernetics, Top Fifteen Scholars in Systems and Software Engineering of the Journal of Systems and Software, Top Cited Paper Award of Pattern Recognition Letters, and so on. On numerous occasions, he was invited to serve as Visiting Professor, Chair Professor, Honorary Professor, Honorary Director, Honorary Chairman, Distinguished Alumnus, Distinguished Researcher, Research Fellow by universities and research institutes. He also published over serval hundred papers in Information Sciences. In the meantime, he participates

actively in international academic organizations and performs advisory work to government agencies and academic organizations.