Research

ChengHsin Hsu's research is helping to improve video viewing on portable wireless devices

Doctoral grad advances mobile TV

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ChengHsin Hsu dreams of the day when his passion for designing computer networks fires up television broadcasting systems driven by BlackBerrys, iPhones and other portable devices.

The seasoned software and networking engineer and author of 16 published research papers says it was SFU's generous income for teaching and research assistants that lured him from the U.S.

"SFU has provided my family and me with guaranteed financial support throughout my doctoral studies," says Hsu, who lives in residence at the Burnaby campus with his wife and two children.

His thesis *Maximizing Video Streaming Quality for Heterogeneous and Mobile Receivers* and his award-winning prototypes of mobile TV base stations and receivers are earning him an SFU doctorate in computing sciences this semester.

The math, engineering and computing science grad hopes to land a job popularizing commercial mobile TV services.

"These services are already popular in Europe and Asia and allow users to receive high speed, high quality transmission of TV programs anytime, anywhere," explains Hsu, a Mandarin-speaking native of Taiwan.

"Growing interest in multimedia communication and streaming video over wireless media means that mobile TV will not only become as popular as mobile gaming and music, it will become the most popular application on portable wireless devices."

Hsu has helped design algorithms that enable various types of mobile communication devices to receive concurrently, via wireless technology, a multitude of programming channels from commercial broadcast networks. The algorithms enable the receiving devices to quickly render incoming programming in the most appropriate format for ensuring optimal video viewing quality on those devices.

"Our system could one day enable cellular networks to more efficiently and cost effectively distribute bulk data, such as YouTube clips, to many cell phone users," explains Hsu. "Cellular networks currently don't have enough bandwidth to achieve that."

Hsu's eight presentations at some of the world's top multimedia and networking conferences, coupled with his prolific publishing, garnered him the best demo award at the Association for Computing Machinery's conferences in 2008 and 2009. He also won a best paper award at the 2008 Institute of Electrical and Electronics Engineers conference. By Carol Thorbes

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