The ACM Special Interest Group on Multimedia (SIGMM) is pleased to present the 2017 SIGMM Outstanding Ph.D. Thesis Award to Dr. Chien-Nan (Shannon) Chen. The award committee considers Dr. Chien-Nan Chen’s dissertation entitled “Semantics-Aware Content Delivery Framework For 3D Tele-immersion” worthy of the recognition as the thesis is the first to consider semantic information in full-aspect with 3DTI systems.

Dr. Chen’s thesis includes confound semantic factors regarding user (role, preferences, view), activity (range, speed, posture, position, number of participants, repetitiveness), and environment (network capability, computing capability, power limitation) into the design and development of 3DTI systems.

Less than a year after its publication, the methodology advanced by this thesis has been adopted by three real-life multimedia applications. One of them is Facebook’s 360 video streaming, which adopted user-objective awareness into its dynamic streaming for 360 content. The second application also comes from Facebook’s 360 media. In the latest F8 conference (Facebook’s annual developer conference) in 2017, they announced that the new dynamic streaming standard will encompass content-semantics awareness into its new view prediction model, which leads to more effective pre-buffering of 360 video content. The third application is a theatrics social experiment involving hundreds of Shakespeare enthusiasts in The Miracle Theatre, UK, which referenced the 3DTI amphitheater developed in this thesis which adopts semantic awareness on prioritized content dissemination.

Overall, the selection committee recognizes that the thesis has significant impact and makes considerable contributions to the multimedia community.

Bio of Awardee

Dr. Chien-Nan Chen is a research scientist at Facebook in Menlo Park, California, US. He holds a Ph.D. degree in computer science from the University of Illinois at Urbana-Champaign, US, an M.Sc. degree in networking and multimedia and a B.Sc. degree in computer science and information engineering from National Taiwan University.

Dr. Chen has co-authored nearly 20 scientific journal and magazine articles, papers in conference proceedings, workshop papers, demos and posters, which were published in ACM Transactions on Multimedia Computing, Communications, and Applications, IEEE/ACM Transactions on Networking, and ACM SIGCOMM Computer Communication Review, and other academic journals.

Dr. Chen received the IEEE INFOCOM Best In-Session Presentation Award (Apr 2016) and was a recipient of UIUC’s Saburo Muroga Endowed Fellowship (2014-2015). He was an international finalist in the Facebook PhD Fellowship (Feb 2014), won the third place at ACM Multimedia Grand Challenge ACM SIGMM (Oct 2013) and first place in UIUC’s Advanced Multimedia Systems Project (Dec 2012).


In addition, Dr. Chen was a meta reviewer of IEEE ISM (2015) and TPC member of ACM