

## Chao Chen

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<b>EDUCATION</b>	Department of ECE, University of Texas at Austin	<b>2009-2013</b>
	• received Ph.D degree in Oct. 2013	
	• advisor: Prof. Alan Bovik and Prof. Robert Heath	
	Department of Automation, Tsinghua University	<b>2006-2009</b>
	• received M.E degree in Jul. 2009	
	Department of Electronic Engineering, Tsinghua University	<b>2003-2006</b>
	• received B.E degree in Jul. 2006	
	Academic Talent Program(ATP), Tsinghua University	<b>2002-2003</b>
<b>EXPERIENCES</b>	<b>Senior Engineer, Qualcomm Technologies.</b>	<b>12/2013-present</b>
	<ul style="list-style-type: none"><li>• Design and develop the firmware that drives the video processor in Qualcomm Snapdragon chipsets, the most widely used smart phone SoC in the world.</li><li>• Develop and implement frame-rate scalable video encoders such that the video bitstreams of different frames rates can be generated simultaneously.</li><li>• Develop various features for Snapdragon HEVC encoders, including dynamic frame rate adaptation, long term reference frame and dynamic intra-coded frame insertion.</li><li>• Develop and implement bitrate control algorithms for real-time video encoding. The bitrate of the encoded bitstream can be adapted to arbitrary value in real-time.</li></ul>	
	<b>Interim Engineering Intern, Qualcomm Technologies</b>	<b>06/2012-08/2012</b>
	<ul style="list-style-type: none"><li>• Develop a non-reference visual quality assessment algorithm for wireless videos that suffer from data packet losses.</li><li>• Using this algorithm, the smart phones can automatically predict the perceptual quality of the received/corrupted video without referring to the original/uncorrupted video at the video server. The smart phone thus can request necessary but not excessive transmission resources (e.g. power or bandwidth) from the service provider to achieve great perceptual video quality for users.</li><li>• Implement an algorithm which measures the blockiness of encoded video frames without referring to the original video content.</li></ul>	
	<b>Research Assistant, The University of Texas at Austin</b>	<b>09/2009-12/2013</b>
	<ul style="list-style-type: none"><li>• Work on Video Aware Wireless Networks (VAWN) project, Co-funded by Intel and Cisco.</li><li>• Conduct subjective study and investigate how to provide great quality of experience (QoE) to wireless video users.</li><li>• Propose a dynamic model which can accurately track wireless video users' QoE.</li></ul>	

- Propose a video bitrate-adaptation algorithm and a user admission control algorithm that optimize wireless video users QoE. The proposed scheme can reduce network resource consumption by 40% over conventional bitrate-adaptation algorithms without sacrificing users QoE.

## SKILLS

**Programming languages:** C, C++, HTML, CSS, JavaScript.

**Signal Processing:** Video/image processing, Digital signal processing.

**Communications:** Wireless communications, queueing theory

**Mathematics:** Probability and random process, Nonlinear programming,

## Journal Publications

R. W. Heath Jr., A. C. Bovik, G. de Veciana, C. Caramanis, J. G. Andrews, **C. Chen**, M. Saad, Z. Lu, A. Abdel-Khalek and S. Singh, "Perceptual optimization of large scale wireless video networks (to appear)", Intel Technical Journal, January 2014.

**C. Chen**, X. Zhu, G. de Veciana, A. C. Bovik and R. W. Heath, Jr., "Rate Adaptation and Admission Control for Video Transmission with Subjective Quality Constraints", IEEE Journal of Selected Topics in Signal Processing, July 2014.

**C. Chen**, L. K. Choi, G. de Veciana, C. Caramanis, R. W. Heath, Jr. and A. C. Bovik, "Modeling the Time-varying Subjective Quality of HTTP Video Streams with Rate Adaptations", IEEE Transaction on Image Processing, vol. 23, no 6, pp. 2206-2221, March. 2014.

**C. Chen**, R. W. Heath, Jr., A. C. Bovik and G. de Veciana, "Markov Decision Model for Perceptually Optimized Video Scheduling", IEEE Transactions on Circuits and Systems for Video Technology, vol.23, no.6, pp.1081-1095, June 2013.

## Conference Publications

**C. Chen**, X. Zhu, G. de Veciana, A. C. Bovik and R. W. Heath, Jr., "Adaptive Video Transmission with Subjective Quality Constraints", accepted by IEEE International Conference on Image Processing, February 2014. (**ICIP2014**)

**C. Chen**, L. K. Choi, G. de Veciana, C. Caramanis, R. W. Heath Jr. and A. C. Bovik, "A dynamic system model of instantaneously perceived quality of rate-adaptive video streams over HTTP", IEEE International Conference on Acoustics, Speech, and Signal Processing, pp.3602-3606, May 2013. (**ICASSP2013**)

**C. Chen**, R. W. Heath, Jr., A. C. Bovik and G. de Veciana, "Adaptive Policies for Real-Time Video Transmission: a Markov Decision Process Framework ", IEEE International Conference on Image Processing, pp.2249-2252, Sept. 2011. (**ICIP2011**)

**C. Chen**, X. Ji, Q. Dai and X. Liu, "Slepian-Wolf coding of binary finite memory sources using Burrows Wheeler Transform", Data Compression Conference, pp.440, March 2009. (**DCC2009**)

**C. Chen**, Q. Wang, Q. Dai, Z. Xiong and X. Liu, "Wyner-Ziv coding of 3D dynamic meshes", SPIE Conference on Visual Communications and Image Processing, Vol. 6822, January 2008. (**VCIP2008**)

**C. Chen**, Y. Liu, Q. Dai and X. Liu, "Performance Modeling and Evaluation of Prediction Structures in Multi-View Video Coding " IEEE International Conference on Multimedia & Expo., pp.1335-1338, July 2007. (**ICME2007**)