

Point Cloud Compression: Applications and Challenges

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ABSTRACT

Point cloud data arise from depth sensing and capturing for both navigation/smart city, as well as content capture and VR/AR playback applications. Recent advances in sensor technology and algorithms, especially high resolution structured light in conjunction with very high resolution RGB camera arrays, have made point cloud capture getting closer to real world applications. In this talk we will discuss the main technical challenges in point cloud compression, especially the static and dynamic geometry compression, as well as attributes compression problems, and the new graph signal processing tools that can bring new coding efficiency. Some initial results will be presented and discussed, as well as the upcoming MPEG Point Cloud Compression call for proposal.

BIOGRAPHY

Zhu Li is an Associate Professor with the Department of Computer Science and Electrical Engineering, University of Missouri, Kansas City, USA, also serving as ad hoc co-chair for the MPEG Point Cloud Compression group. He received his PhD from Electrical and Computer Engineering from Northwestern University in 2004, and was AFRL Faculty Fellow at the US Air Force Academy, Summer, 2016 and 2017, Sr. Staff Researcher/Sr. Manager with Samsung Research America's Multimedia Core Standards Research Lab in Dallas, from 2012-2015, Sr. Staff Researcher with FutureWei(Huawei)'s Media Lab in Bridgewater, NJ, from 2010-2012, Assistant Professor with the Department of Computing, The Hong Kong Polytechnic University from 2008 to 2010, and a Principal Staff Research Engineer with the Multimedia Research Lab (MRL), Motorola Labs, Schaumburg, Illinois, from 2000 to 2008. His research interests include image/video analysis, compression, and communication and associated optimization and machine learning tools. He has 30+ issued or pending patents, 90+ publications in book chapters, journals, conference proceedings and standards contributions in these areas. He is an IEEE senior member, elected member of the IEEE Multimedia Signal Processing (MMSP) Technical Committee, 2014-17, 2017-20, elected Steering Chair (2016-18) of the IEEE Multimedia Communication Technical Committee (MMTC), elected member of the IEEE Circuits & System Society Multimedia Systems & Application (MSA) Tech Committee. He is an Associated Editor for IEEE Trans. on Multimedia (2015~), IEEE Trans. on Circuits & System for Video Technology (2016~), Springer Journal on Signal Processing Systems (2015~), co-editor for the Springer-Verlag book on "Intelligent Video Communication: Techniques and Applications". He is general co-chair for IEEE VCIP 2017, Special Session co-Chair for IEEE ICME 2017, he served on numerous conference and workshop TPCs and was area chair for IEEE ICIP 2015, 2016, 2017, ICME 2015, 2016, and symposium co-chair at IEEE ICC'2010, and IEEE Globecom 2017. He served on the Best Paper Award Committee for IEEE ICME 2010. He received a Best Paper Award from IEEE Int'l Conf on Multimedia & Expo (ICME) at Toronto, 2006, and a Best Paper Award from IEEE Int'l Conf on Image Processing (ICIP) at San Antonio, 2007.

All are welcome!



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