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PROGRAM

Data Compression Conference (DCC 2015)

Sponsored by U. Arizona, Brandeis U., Microsoft Research, IEEE Signal Processing Society
Proceedings published by IEEE Computer Society Conference Publishing Services (CPS)

Snowbird, Utah, April 7 - 9, 2015

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SCHEDULE OVERVIEW:

Monday Evening, April 6:
Registration and Reception (7pm - 10pm)

Tuesday, April 7:

Morning:	Technical Sessions 1, 2	(8:00am - noon)
Mid-Day:	Invited Presentation	(2:30pm - 3:30pm)
Afternoon:	Technical Sessions 3, 4	(4:00pm - 6:40pm)

Wednesday, April 8:

Morning:	Technical Sessions 5, 6	(8:00am - noon)
Mid-Day:	Invited Presentation	(2:30pm - 3:30pm)
Afternoon:	Poster Session and Reception	(4:00pm - 7:00pm)

Thursday, April 9:

Morning & Mid-Day:	Technical Sessions 7,8,9,10	(8:00am - 1:40pm)

MONDAY EVENING
Registration / Reception, 7:00-10:00pm (Primrose Room)

TUESDAY MORNING

SESSION 1, Special Session on "Extensions to the HEVC Standard", Part 1

Break: 10:00am - 10:20am

SESSION 2

Tuesday Lunch Break: noon - 2:30pm

TUESDAY MID-DAY

Keynote Address

2:30pm - 3:30pm

A Partial Hstry of Losy Compression

Robert M Gray

Stanford University, Boston University

Abstract:

The title exemplifies the topic as it is easily recognized as compressed from possible English original versions. It also exemplifies some difficulties. A small sampling of readers all thought "Losy" was a corruption of "Lossy," which is consistent with the apparent loss of letters in "Hstry" and "Losy". But while "Hstry" is compressed, it is not really lossy since it can almost certainly be decoded into "History" (as my spell checker does). Moreover, "Losy" need not be "Lossy" — an equally good candidate in terms of minimizing Levenshtein distance is "Lousy" — so this talk could be a history of lousy compression, lossless or lossy.

There are also problems in the uncompressed words. "Partial" has neither compression nor evident losses, but it has ambiguous meaning: it could equally well mean "incomplete" or "biased." So the title is not uniquely decodable, which equally favors "lossy" (since you cannot guarantee an accurate reconstruction) or "lousy" (since lossy coding of English seems a bad idea).

This talk will embrace the ambiguity of the title.

TUESDAY AFTERNOON

SESSION 3

Break: 5:00pm - 5:20pm

SESSION 4

WEDNESDAY MORNING

SESSION 5

Break: 9:40am - 10:00am

SESSION 6, Special Session on "Extensions to the HEVC Standard", Part 2

Wednesday Lunch Break: noon - 2:30pm

WEDNESDAY MID-DAY

Keynote Address

2:30pm - 3:30pm

It's Been 1,000,000 Years Since Huffman

Alistair Moffat

The University of Melbourne

Abstract:

David Huffman's algorithm for computing minimum-redundancy prefix-free codes has legendary status in the computing disciplines. Its elegant blend of simplicity and applicability has made it a favorite example in algorithms courses, and if all of the class assignments are included, it is perhaps one of the most implemented techniques in computer science. Huffman's seminal paper now has over 5,000 citations.

The origins of Huffman coding are captured by Gary Stix, who recounts a tale that Huffman told to a number of people. While enrolled as a graduate student at MIT in 1951 in a class taught by coding pioneer Robert Fano, Huffman and his fellow students were told that they would be exempted from the final exam if they solved a coding challenge as part of a term paper. Not realizing that the task was an open problem that Fano had been unable to solve himself, Huffman elected to work on the term paper. After months of unsuccessful struggle, and with the final exam just days away, Huffman threw his attempts in the bin, and started to prepare for the exam. A flash of insight the next morning had him realize that the attempt he had thrown in the trash was in fact a bottom-up strategy that would lead to a solution to the problem. Huffman coding was born at that moment. Following publication of his paper in Proceedings of the Institute of Radio Engineers (the predecessor of Proceedings of the IEEE) in 1952, the new technique quickly replaced the previous Shannon-Fano coding as the method of choice for data compression applications.

David Huffman died in October 1999, at the age of 74, shortly after being awarded the 1999 IEEE Richard W. Hamming Medal "for design procedures of minimum redundancy (Huffman) codes and asynchronous sequential circuits, and contributions to analysis of visual imagery". Huffman codes continue to be relevant, and are embedded in a wide range of critically important communications and storage codecs. With 2015 marking the 64th anniversary of their development – 1,000,000 years in binary – it is timely to review Huffman and related codes, and the many mechanisms that have been developed for computing and deploying them.

WEDNESDAY AFTERNOON

POSTER SESSION AND RECEPTION

4:00 - 7:00pm

In the Golden Cliff Room

(Titles are listed at the end this program; abstracts of each presentation appear in the proceedings.)

THURSDAY MORNING

SESSION 7, Special Session on "Data Compression for Networked Performances and Immersive Presence"

Break: 9:00am - 9:20am

SESSION 8, Special Session on "Visual Search"

Break: 10:40am - 11:00am

THURSDAY MID-DAY

SESSION 9

Break: noon - 12:20pm

SESSION 10

Poster Session

(listed alphabetically by first author)