

For expanded coverage of this month's topic on "Compression," the following article is available only in the Digital Edition of this issue. Visit the SMPTE digital library at <http://journal.smpte.org> to access the issue and to read this paper.

### The Open-Source Turing Codec: Toward Fast, Flexible, and Parallel HEVC Encoding

By Saverio Blasi, Matteo Naccari, Rajitha Weerakkody, John Funnell, and Marta Mrak

The Turing codec is an open-source software codec compliant with the High Efficiency Video Coding (HEVC) standard and specifically designed for

speed, flexibility, parallelization, and high coding efficiency. The Turing codec was designed starting from a completely novel backbone to comply with the Main and Main10 profiles of HEVC, and it has many desirable features for practical codecs such as very low memory consumption, advanced parallelization schemes, and fast encoding algorithms. This paper presents a technical description of the Turing codec as well as a comparison of its performance with other similar encoders. The codec is capable of cutting the encoding complexity by an average 87% with respect to the HEVC reference implementation for an average coding penalty of 11% higher rates in compression efficiency at the same peak-signal-noise-ratio level.

SMPTE

## Join the SMPTE Board of Editors



The SMPTE Journal is seeking members interested in actively participating in its online peer review process. Members of the Board of Editors have the opportunity to review and evaluate papers submitted for publication in their areas of expertise and interest. Board membership also provides the opportunity to suggest and discuss important issues in motion imaging to determine relevant topics for publication in the Journal. Working with the Board of Editors Chair, Managing Editor, and your colleagues on the BoE in shaping and maintaining a high level of editorial quality in the Journal, you will provide a valuable service to all SMPTE members and the Motion Imaging industry in general. If you would like to join this volunteer effort please contact Glen Pensinger, BoE Chair, for further information at [glenpensinger@ieee.org](mailto:glenpensinger@ieee.org).