

## IEEE Transactions on Consumer Electronics

### Call for Papers

### Special Section on Real Time Implementation of VVC Standard for Consumer Electronic Devices

The next generation ISO/IEC MPEG/ITU-T VCEG video coding standard called Versatile Video Coding (VVC) was released in July 2020. VVC includes several coding tools enabling significant coding gains estimated to 25% and 35% of bit-rate reductions for the same PSNR quality as HEVC in All Intra (AI) and Random Access (RA) coding configurations, respectively. Subjective comparison recently conducted between HEVC and the VVC reference software, has shown that this gain is even higher and can reach 50% of bit-rate reduction for the same perceived video quality. However, this coding gain comes at the expense of complexity increase at both encoder and decoder. The VVC encoder is estimated to be **10x** more complex than HEVC in RA configuration and **27x** in AI configuration. The complexity of the VVC decoder is doubled compared to HEVC. Therefore, complexity reduction of VVC is of prominent importance to enable the design of software and hardware real time VVC codecs for successful deployment on video consumer devices including among others TVs, mobile phones and tablets.

To enable real time implementations of the VVC codec in consumer electronic products, significant efforts should be dedicated to reach real time performance at high resolution videos (4K and 8K) or with applications with very limited resources (memory/battery). This special section addresses real time software and hardware implementations of the VVC encoder and decode (codec) on consumer electronic devices. Topics of interest in this special section include (but are not limited to):

- Software real time implementations of VVC codec for Consumer Electronic Devices.
- Hardware implementation of VVC codec on FPGA and ASIC devices.
- Real time Implementations of VVC quality enhancement and super resolution algorithms.
- Machine learning based complexity reduction of the VVC encoder.
- Low level optimizations (SIMD) and high level parallelism for VVC codecs on mobile devices.
- Energy estimation models of VVC codecs on mobile platforms.
- VVC-based live video broadcast and streaming OTT, DASH, CMAF.
- VVC coding tools complexity and coding performance analysis.

### Important dates

- |   |                     |
|---|---------------------|
| • Submission of Manuscripts:              | 30th JUNE 2021      |
| • Notification to Authors (1st Revision): | 31st SEPTEMBER 2021 |
| • Submission of Revised Manuscripts:      | 1th NOVEMBER 2021   |
| • Notification to Authors (2nd Revision): | 31th DECEMBER 2021  |
| • Final Versions Due:                     | 15th JANUARY 2022   |
| • Publication scheduled on:               | FEBRUARY ISSUE 2022 |

## Guest Editors

- **Wassim Hamidouche**, Univ. Rennes, INSA Rennes, CNRS, IETR - UMR 6164, Rennes, France [wassim.hamidouche@insa-rennes.fr](mailto:wassim.hamidouche@insa-rennes.fr)
- **Fernando Pescador**, CITSEM at Universidad Politécnica de Madrid, Madrid, Spain [fernando.pescador@upm.es](mailto:fernando.pescador@upm.es)
- **Edouard François**, InterDigital, Rennes, France
- **Thibaud Biatek**, ATEME, Rennes, France

## *Instructions for authors*

Manuscripts must be submitted online following the IEEE transactions on Consumer Electronics instructions: <https://ctsoc.ieee.org/publications/ieee-transactions-on-consumer-electronics.html>. During submission, select the special section on [Real Time Implementation of VVC Standard for Consumer Electronic Devices](#).