Call for papers   **IEEE Journal of Selected Topics in Signal Processing**

Special Issue   **Reconstruction of audio from incomplete or highly degraded observations**

The restoration of audio content, in particular speech and music from degraded observations, is a challenging and long-standing problem in audio processing. In particular this holds for severe degradations and incomplete observations. Traditional restoration techniques are often not applicable or perform poorly in this case. The advent of sparse signal processing in the beginning of this century and, even more recently, of (deep) machine learning has opened wide new research and design opportunities for audio restoration, among many other signal processing problems. With the aid of such contemporary tools, researchers have recently been able to achieve unprecedented success in recovering or significantly improving quality of severely degraded audio. As the field advances very quickly, the potential for improvement, as well as exploration, is hardly exhausted.

Audio restoration addresses a large number of important degradation scenarios. Further, audio restoration can be performed with varied tools. The proposed issue will serve both as a comprehensive primer on the state-of-the-art, and a showcase of current developments within the field, targeting newcomers as well as already experienced researchers.

Topics of interest in the special issue include (but are not limited to):
- **restoration problems:**
  packet loss concealment; inpainting; declipping; dequantization; phase recovery; bandwidth extension; coding artifact removal; compressive sampling recovery; dynamic range decompression; reconstructing audio signals from features,
- **methodological frameworks:**
  time-frequency representations; (non-)convex optimization; operator and dictionary learning; nonnegative matrix/tensor factorization; (end-to-end) artificial neural networks; generative networks (e.g., generative adversarial nets and variational autoencoders); graph signal processing; psychoacoustics.

Excellent articles that cannot be accommodated in the special issue will be automatically transferred (without re-submission) and considered for regular publication in IEEE/ACM TASLP.

This special issue encourages reproducible research: authors are invited to provide their code and data, to use available material for benchmarking (e.g. SMALL dataset), and to contribute by any means (e.g., high-quality datasets and code, challenges) to the sustainability, the reproducibility and the reliability of the research works in the proposed topics.

Dates:
Manuscript submission: May 1, 2020 (extended)
Decision notification: Jul 1, 2020
Revised manuscript due: Aug 1, 2020
Second reviews completed: Sep 15, 2020
Final manuscript due: Nov 1, 2020

Accepted articles are immediately published as Early Access and do not wait until the entire special issue is closed.

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