

Special Session Quality Assessment for Medical Imaging

Invitation for contributions

Motivation

Delivering the best image and video quality to clinical professionals remains a fundamental challenge for medical imaging technologies, products, and services. In addition, with the COVID-19 pandemic, the applications of multimedia systems in e-health have become critical, particularly for telemedicine (e.g., tele-consultation and tele-expertise). It is thus crucial to understand, and model, medical image perception. Actual research encompasses a wide range of aspects related to technical system characteristics, human perception and behaviour, user needs and responses, and usability of the end content. Being able to control, and then improve medical image quality requires a detailed understanding of medical image perception.

Objectives

The goal of this special session is to bring together researchers and practitioners from different disciplines, including medicine, psychology, neuroscience, computer science, and human-computer interaction to exchange ideas, concepts, and approaches; to facilitate discussions and foster new insights into understanding medical image perception; and to promote collaboration and interdisciplinary perspectives to medical image quality modelling. We intend to cover timely and challenging subjects, such as (human and computer) detection and discrimination of abnormalities, computer-based perception, impact of display and ergonomic factors on diagnostic performance, effect of image processing on perception and performance, and image and video quality assessment methodologies.

Topics of interest

We are seeking papers that include, but are not limited to, the following topics:

- Subjective and objective experiments for medical image quality assessment.
- Relationship between perceptual and task-based medical image quality.
- Task-based assessment based on model observers (including synthesised images).
- Computer-based medical image perception.
- Datasets with new diagnostic tasks.
- Medical objective image quality assessment models.
- Methodologies, and guidelines for subjective medical image quality assessment.
- Perceptual (quality-guided) medical image processing (enhancement, segmentation, coding, and watermarking).

Research works on COVID-19 are especially encouraged to be submitted.

Submission Procedure

Deadline for full paper submission (maximum of 5 pages, including 1 page for references) is February 16, 2022. Accepted and presented papers will be published in IEEE Xplore, and in the Conference Proceedings. More information on ICIP 2022 call for papers is available at: <https://2022.ieeeicip.org/call-for-papers/>.

Organising Committee

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The organisers are members of the **VQEG Quality Assessment for Health Applications (QAH) group**, which focuses on methodological and interpretative differences between the non-task-based and task-based medical image quality assessment, including both subjective and objective strategies. Task-based approaches, or model observers, have been popular in the medical image quality assessment domain since 1993. The underlying paradigm is to quantify the quality of a particular image by its effectiveness with respect to its intended task.