

Preface: Internet multimedia computing and service

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There exist large amounts of multimedia content on the Internet. However, current consumer expectations for multimedia applications still far exceed the achievement of today's state of the art technologies. There is a technical gap between rich multimedia contents and multimedia computing technologies. This special issue focuses on the problem of Internet Multimedia Computing and Service, which aims at providing readers new perspectives on this hot research area. This special issue contains 10 papers covering various aspects of Internet multimedia, which can be categorized into three groups: semantic multimedia understanding, adaptive Internet multimedia access, and human-centered multimedia service. We believe that the papers included in this special issue not only provide outstanding research contributions but also form the latest overview of research interest in this field. The key ideas and contributions of these papers are summarized as below.

1 Semantic multimedia understanding

Semantically understanding of multimedia data is an essential problem for Internet multimedia applications, where feature representation plays an important role. The paper

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“Evaluation of local features and classifiers in BOW model for image classification” by Qu-Wu-Liu-Xie-Wang (doi: [10.1007/s11042-012-1107-z](https://doi.org/10.1007/s11042-012-1107-z)) studies the popular BOW image representation model and evaluates the performance of different detectors and classifiers for image classification.

To obtain fine-grained image annotation results at the region level, the paper “Region level annotation by fuzzy based contextual cueing label propagation by Zhong-Liu-Liu-Chung (doi: [10.1007/s11042-011-0954-3](https://doi.org/10.1007/s11042-011-0954-3)) proposes a label to region assignment (LRA) method called Fuzzy-based contextual-cueing label propagation (FCLP). Contextual cueing means the visual elements with their surroundings. This paper is one of the first attempts to integrate contextual cueing in the multimedia computing domain.

The paper “Typicality ranking: beyond accuracy for video semantic annotation” by Tang-Hua (doi: [10.1007/s11042-011-0892-0](https://doi.org/10.1007/s11042-011-0892-0)) deals with video annotation from the point-view of typical relevance. The proposed method relaxes the semantic labels of training data to quantitatively typicality scores. Moreover, a new evaluation criterion compatible with the proposed method is also proposed.

Contextual information in the Internet is a useful clue to better understand and utilize multimedia data. The paper “Integrating bilingual search results for automatic junk image filtering” by Yang-Peng-Feng-Pan (doi: [10.1007/s11042-012-1051-y](https://doi.org/10.1007/s11042-012-1051-y)) proposes an interesting idea by using bilingual image retrieval results to remove the junk images and obtain more satisfactory retrieval results.

2 Adaptive Internet multimedia access

Multimedia data are accessed by users with different devices and network conditions. The following three papers work on adaptive Internet multimedia access trying to provide users more flexible solutions to access multimedia data.

The paper “Seamless video access for mobile devices by content-aware utility-based adaptation” by Nur-Kodikara Arachchi-Dogan-Kondozi (doi: [10.1007/s11042-012-1120-2](https://doi.org/10.1007/s11042-012-1120-2)) proposes an adaptive decision making method to decide suitable scalable parameters for adaptive video access using a utility based approach.

The paper “Semantic aware sport image resizing jointly using seam carving and warping” by Wu-Gong-Yuan-Zhang-Cao (doi: [10.1007/s11042-012-1002-7](https://doi.org/10.1007/s11042-012-1002-7)) researches on the problem of determining suitable image sizes for suitable devices based on the content analysis of sport images. The method in this paper is composed of two steps. The first is court field detection and court boundary segmentation. The second step implements warping and seam carving to generate the final results.

Super-resolution is a special kind of image resizing and is a hot research topic recently. The paper “Image super-resolution based on multi-space sparse representation” by Jing-Shi-Kong-Ding-Yin (doi: [10.1007/s11042-011-0953-4](https://doi.org/10.1007/s11042-011-0953-4)) proposes a super-resolution method by decomposing images into structural and textual component and reconstructing them based on the technique of multi-space sparse representation.

3 Human-centered multimedia service

Human is the final user of multimedia data. How to satisfy user’s requirement from various aspects is also an important research problem. The paper “A three-level framework for affective content analysis and its case studies” by Xu-Wang-He-Jin-Luo-Lu

(doi: [10.1007/s11042-012-1046-8](https://doi.org/10.1007/s11042-012-1046-8)) investigates the problem of video content affective analysis by introducing a mid-level representation, which includes audio and textual semantic information.

To generate attractive and interesting human representation, 3D face based techniques are useful solutions in many Internet application scenarios. The paper “Expansion of 3D face sample set based on genetic algorithm” by Ge-Yin-Sun-Jing (doi: [10.1007/s11042-012-1102-4](https://doi.org/10.1007/s11042-012-1102-4)) proposes a method to automatically expand 3D face training samples to enrich the 3D face database.

Recommendation is an effective technique of personalized multimedia service. The paper “Interactive ads recommendation with contextual search on product topic space” by Wang-Wang-Duan-Tian-Lu (doi: [10.1007/s11042-011-0866-2](https://doi.org/10.1007/s11042-011-0866-2)) proposes an advertisement recommendation service system by considering hierarchical concept relations and contextual search information. Users can interactively select their favorite key frames, and users’ intentions can be included in the system.

We are grateful to all authors for their contributions to this special issue. We appreciate the reviewers for their valuable comments to ensure the quality of all the accepted papers. We would also like to thank Editor-in-Chief Prof. Borko Furht for approving this special issue. Finally, our special thanks go to Maria Mhanilet de Leon, Laura A. Lander, Melissa Fearon, and Razel Gerona at the Editorial Office for supporting and organizing the review process. We hope that these articles will stimulate further research activities for this promising research area.



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