



IJCARS–JAMIT 2019–2020 special issue

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This special issue of the International Journal of Computer Assisted Radiology and Surgery (IJCARS) contains papers on selected studies from the presentations at the 38th and 39th annual conferences of the Japanese Society of Medical Imaging Technology (JAMIT). The 38th and 39th conferences were held from July 24 to 26, 2019, at Nara Kasugano International Forum, Japan, and from September 17 to 19, 2020, on the Internet, respectively. We are honored to publish this special issue in collaboration with IJCARS and JAMIT as continuation of the first special issue in 2017.

The main topics of the conference, including deep learning in each topic, were:

Medical imaging and reconstruction theory (CT, MRI, X-ray, US, PET, SPECT, OCT, biological image, histological image, etc.);

Medical image analysis (segmentation, registration, feature extraction, etc.);

Computational anatomy and computational physiology;

Computer-aided diagnosis (CAD);

Computer-aided surgery and therapy (medical robots, surgical and interventional systems, etc.);

Visualization, interactions, virtual/augmented reality, and simulations; and.

Medical informatics (PACS, IHE, telemedicine, e-health, etc.).

The conference attracted many engineers, clinicians, and scientists in Japan. There were 121 and 111 oral and poster presentations in the conferences in 2019 and 2020, respectively. We encouraged the authors of high-quality presentations of the JAMIT annual conference to submit to the special issue of IJCARS JAMIT 2019–2020. Finally, nine papers were accepted out of 13 submitted papers from 24 recommended presentations at the conferences in 2019 and 2020. The submitted papers, including research content, were presented at the conferences. The authors proceeded with useful discussions at the conferences to submit the final manuscripts. The submitted papers underwent the regular IJCARS review process.

The current special issue includes the following nine research papers. Two papers were on the topic of “medical image processing.” Uemura et al. proposed an automated quantification system of bone mineral density from clinical CT images. Shimizu et al. introduced a classification method for a large database of skin disease images. Four papers were on “medical imaging.” Inoue et al. proposed a prior ensemble learning for MR images. Matsubara et al. introduced a prediction of an oxygen extraction fraction map from MR and PET images. Takeda et al. introduced a 3-D integral type reconstruction formula for MR elastography. Huang et al. proposed a ring artifact removal for phase contrast X-ray CT. Two papers were on “Medical image analysis / modeling.” Sunaguchi et al. reported a histological observation of milk duct structures in human nipple using X-ray dark field imaging. Mabu et al. used semi-supervised cycle GAN for Domain Transformation of Chest CT Images. Finally, one paper was on the topic of “computer-aided detection.” Nomura et al. proposed a generalized semiautomatic segmentation method for 3D voxel labeling of lesions.

We trust that this special issue will provide an overview of the important studies at the JAMIT annual conferences in 2019 and 2020. We hope the readers will enjoy this special issue.

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