



Guest editorial of the IJCARS–JAMIT 2017–2018 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 36th and 37th annual conferences of the Japanese Society of Medical Imaging Technology (JAMIT). The 36th and 37th conferences were held from July 27 to 29, 2017, at Juroku Plaza in Gifu, Japan, and from July 25 to 27, 2018, at the Union Building, Tennodai Campus, University of Tsukuba in Ibaraki, Japan, 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 100 and 80 oral presentations in the conferences in 2017 and 2018, respectively. We encouraged the authors of high-quality presentations of the JAMIT annual conference to submit to the special issue of IJCARS JAMIT 2017–2018. Finally, six papers were accepted out of 13 submitted papers from 28 recommended presentations at the conferences in 2017 and 2018. 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 six research papers, which are on the first four topics among the seven topics at the conference. All papers were on the topic of “medical image analysis.” Three papers were also on the topic of “computational anatomy.” Nakayama et al. and Soufi et al. applied statistical shape modeling methods to the liver. Oda et al. introduced a new deep learning method for artery segmentation. Two papers were also on “medical imaging.” Tamura et al. proposed a new integration method of electrical stimulation results using a normal brain model. Kugler et al. also proposed a new integration method of different stains for histopathological images in 3D spaces. One paper was also on the topic of “CAD.” Hanaoka et al. proposed a fundamental idea using a graph theory to detect abnormal regions and demonstrated the technique in detecting cerebral aneurysms and lung nodules.

We trust that this special issue will provide an overview of the important studies at the JAMIT annual conferences in 2017 and 2018. We hope the readers will enjoy this special issue.

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