Summary

Atlas of human anatomy is an important teaching tool in the medical community. In the recent years, digital atlases of human anatomy have become popular and hot topics in medical image analysis research field. The basic idea of the digital atlas is to capture the organ variability of its position, shape and voxel intensity (texture) from a training set (either different individuals (inter-patient variability) or the same individual (intra-patient variability)). We constructed computational abdominal models and developed advanced computer-aided diagnosis (CAD) and computer-aided surgery (CAS) systems by combining the models with the artificial intelligence (AI) and augmented reality (AR) techniques. In this speech, I will talk about current progress and futures of computational anatomy and its application to CAD and CAS. I will also introduce our MEXT strategic research project “Towards Anywhere at Any time ‘Japanese Quality’ Medical Treatment” and some research activities of research center of advanced ICT for medicine and healthcare.