

計算メディア (北原 格)

Computational Media (KITAHARA Itaru)



KITAHARA Itaru, Ph.D.
Associate Professor
Center for Computational Sciences,
University of Tsukuba

E-mail address: kitahara@ccs.tsukuba.ac.jp
URL: <http://www.image.iit.tsukuba.ac.jp/>



3次元バーチャル手術ナビゲーション

外科医師不足や医療技術の高度化を背景に、ICT技術を用いたバーチャル手術に注目が集まり、オーダーメイド人体CGモデル生成、CGデータによる術前計画・術中ガイダンス・術後確認などの成果が上がりつつあります。その一方、手術の進行に応じて施術者を適切に誘導する“手術ナビゲーション”の実現は未だ道半ばです。我々の研究室では、手術ナビゲーションの実現を目指し、①術部・手術状況の3次元的な観測、②観測結果を用いた手術情報の可視化、③状況に応じた的確な拡張現実型ナビゲーション、④ナビゲーションシステムの構築と実利用に関する研究開発に取り組んでいます。

3D-CG Virtual Surgical Navigation

With the lack of surgeons and drastical improvement of medical technology, attention has focused on VR surgery using ICT technology. As the results, some achievements such as “tailor-made human body CG model”, “preoperative planning, intraoperative guidance, postoperative confirmation using CG data”, are realized. On the other hand, the realization of “surgical navigation” to properly guide the surgeons in accordance with the progress of surgical operation is still on the development. Our laboratory conducts on researches of surgical navigation aiming to realize (1) 3D sensing for surgical situation, (2) visualization of surgical information using sensing results, (3) accurate AR (Augmented Reality) navigation according to the surgical situation, (4) constructing practical navigation system.

3D-CG Virtual Surgical Navigation aims for...

- Improving Instruction Level: Integration of 3D simulation and onsite navigation.
- Elimination of Surgeon Shortage: VR/AR remote treatment, advanced skill passing.
- Doctor's Education: Evaluation of surgical procedures and proficiency by 3D sensing.

