KOBE UNIVERSITY

ROBOT LOG AND ITS POTENTIAL FOR AUTONOMOUS ROBOTIC SURGERY AND SKILL TRANSFER

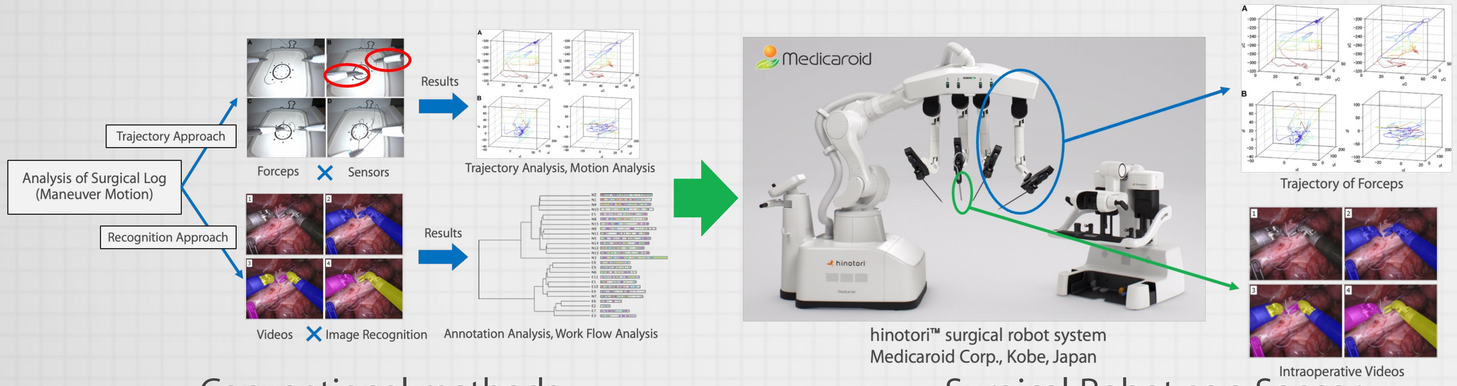
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Purpose:

We are quantitatively evaluating surgeons' surgical techniques by analyzing the robot log to visualize a surgeon's implicit skill and knowledge. The log data are generated by manipulating the hinotori™ Surgical Robot System, which was developed and commercialized by Medicaroid Corp. (Kobe, Japan). hinotori™ is a robotically assisted surgical system that reproduces a surgeon's precise hand movements, which is essential for surgery.

Approaches to Surgical Log Analysis

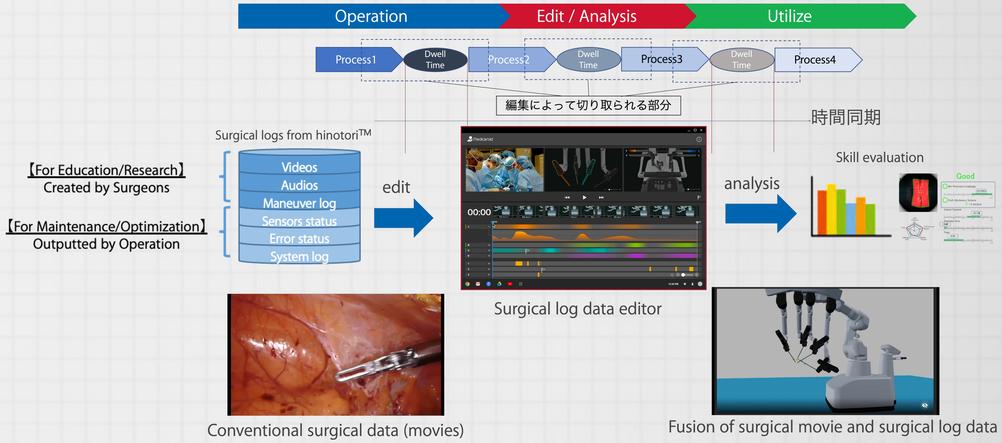


hinotori™ surgical robot system
Medicaroid Corp., Kobe, Japan

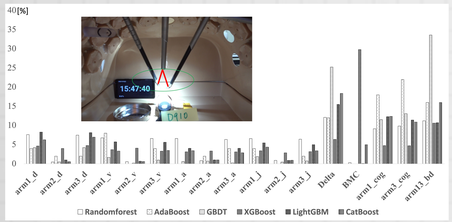
Conventional methods

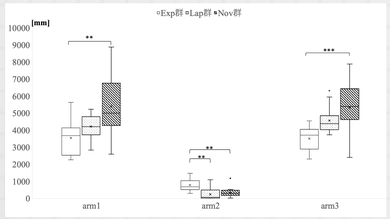
Surgical Robot as a Sensor

Development of Surgical Log Edit Tool



Examples of results (surgical skill evaluation)





Conclusion:

We are aiming to establish technology for autonomous robotic surgery. We believe that we should focus on the value created by autonomous control, rather than the replacement of manual procedures, and implement new functions. Analyzing potential operation failures that frequently occur in robot-assisted surgery and developing a practical function that avoids such failures in the subconscious of the surgeon will lead to the realization of safe and secure surgery. We are also aware of the potential value of the robot log, in addition to associated Ethical, Legal, and Social Issues (ELSI).

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