Driver-Activated Videoscopic Imaging Device (DA-VID):
A Hardware-Agnostic Video Processing Algorithm Enabling Focused Video Display in Laparoscopic Surgery

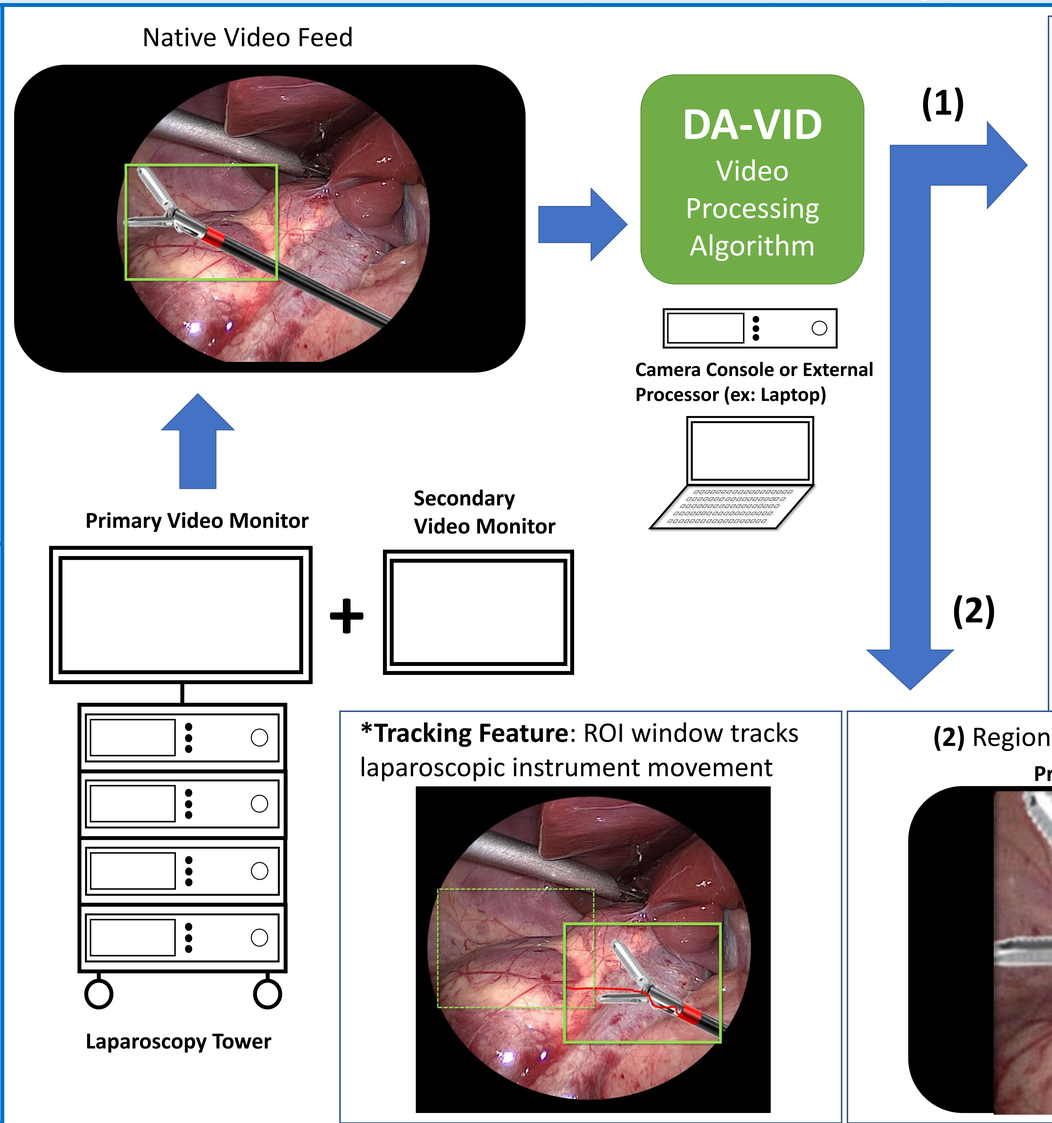
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Objective

- Laparoscopic surgeons are **limited by what they can see** through their surgical camera
- To operate effectively, surgeons must constantly **adapt their camera view to a specific region of interest (ROI)** while keeping the bigger picture in view.
  - This problem is compounded when the surgeon works with an assistant to drive the camera, which makes camera control more complex and less reliable

Description

- **Driver-Activated Videoscopic Imaging Device (DA-VID)** is a laparoscopic hardware-agnostic video processing algorithm that enables surgeons to focus on a specific ROI via a video sub-window while maintaining the full laparoscopic field of view
- Current Features:
  - Real-time video processing and display of magnified ROI
  - Surgeon control over ROI window via laparoscopic instrument Tracking Feature*



Conclusions

- DA-VID is **adaptable to any existing laparoscopic camera** system and enhances surgeon visualization of critical target anatomy by offering **control over a region of interest** in laparoscopic surgery while maintaining a full field of view

Future Directions

- Real-time video processing algorithm lays groundwork for further features:
  - Image stabilization
  - Multi-user image navigation/ROI control
  - Panoramic multi-camera image stitching of the laparoscopic operative field

Funding & Acknowledgements

Funding provided by Brown Biomedical Innovations to Impact (BBII) grant.

Special thanks to Karen Bulock (business development) and Dimitri Panagos (software development) for making this project possible.