SurgiSkins: Live, Remote Surgical Telementoring with Multi-sensory Clinical Instruction

James P. Smurro; G. Anthony Reina
Foresight Imaging LLC (Chelmsford, MA); SkySurgery LLC (Coronado, CA)

Problem

Surgical skills training gap

Advances in technology

Can telemedicine bridge this training gap?

Approach

SurgiSkins – Interactive Surgical Video Telestration + Haptic Simulation

- Surgical video interwoven with computational physics mesh that mimics human tissue response
- Real time ability to superimpose virtual instruments that can:
  - manipulate
  - apply tension
  - virtually cut
  - virtually suture

Three components:
- Virtual mesh
- UV Texture Map
- Virtual Instruments

Results

- Interactive, live, remote surgical telementoring
- Successful intraoperative telecollaboration during RPLND
- Telementors can remotely demonstrate use of:
  - Forceps
  - Scalpel
  - Suture

Visually describe the force, direction, and speed of a maneuver to the operating surgeon in a natural way during a procedure in real time over a standard internet connection.

Conclusion

Collaborative clinical instruction that supports
- pre-operative surgical planning
- intraoperative surgical decision-making
- post-operative clinical review

Faster, Smarter, Better
Accelerate specialist skills acquisition remotely

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