Using Machine Learning And 3D Projection To Guide Surgery

Tech ID: 34311 / UC Case 2021-961-0

BRIEF DESCRIPTION

A medical device that uses machine learning and augmented reality to project precise surgical guides onto 3D patient anatomy, enabling real-time surgical guidance and remote expert collaboration.

FULL DESCRIPTION

This innovative medical device leverages advanced machine learning algorithms to analyze detailed human surface anatomy and generate accurate surgical plans. These plans are then projected onto the patient's 3D surgical site via an augmented reality (AR) platform, providing interactive, real-time guidance during surgery. The system allows users to manipulate the projected guides and facilitates remote expert involvement, enhancing surgical training and skill transfer. This technology addresses limitations in traditional apprenticeship training by accelerating knowledge acquisition and improving surgical outcomes through data-driven guidance.

SUGGESTED USES

- Post-graduate surgical training and education programs.
- Remote surgical mentorship and real-time guidance.
- Surgical outreach in low-resource and underserved regions.
- Hospitals and surgical centers aiming to improve operative outcomes.
- Medical device companies focusing on AI and augmented reality integration.

ADVANTAGES

- Accurate, data-driven surgical guides generated by artificial intelligence (AI).
- Interactive, real-time projection of surgical plans onto 3D anatomy.
- Facilitates remote collaboration between experts and surgical learners.
- Enhances surgical training efficiency and skill transfer.
- Reduces subjectivity and variability in surgical procedures.
- Usable in low-resource settings and traditional training environments.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20240268897	08/15/2024	2021-961

CONTACT

Edward Hsieh
hsiehe5@uci.edu
tel: 949-824-8428.

OTHER INFORMATION

CATEGORIZED AS

- **Imaging**
  - 3D/Immersive
  - Medical
- **Medical**
  - Devices
  - Imaging
  - Software

RELATED CASES

2021-961-0

RELATED MATERIALS

» Sayadi, L. R., et al. (2018). A novel innovation for surgical flap markings using projected stencils. Plast. Reconstr. Surg., 142 (3).

» Raj, V., et al. (2020). Using virtual augmented reality to remotely proctor overseas surgical outreach: building long-term international capacity and sustainability. Plast. Reconstr. Surg., 146 (5).

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5270 California Avenue / Irvine,CA
92697-7700 / Tel: 949.824.2683