

Self-Adjusting Controllers For Force Assistance Systems In Surgical Robotics

Published date: June 20, 2019

Technology description

Invention

This technology is a force guidance system for use in human-machine hand-on interfaces like surgical robots. By using sensors, heuristics and motors, the proper force can be applied to the human end to simulate the resistance encountered on the robotic end. This technology employs a novel algorithm that allows the system to tailor the resistance to a user's style and preference for use in training simulators.

Background

When surgeons use robotic assist devices it can be difficult for them to gauge the pressure and force necessary to apply to the soft tissue, which can result in trauma or damage to tissue and organs. The technology presented here allows the surgical tools to mimic the resistance and force applied so the surgeon can feel and adjust pressure accordingly.

Application area

Robotic surgery

Tele-operation platforms

Driver support systems

Rehabilitation devices

Skills training

Handwriting assistance systems

Any robotic tool where force control systems are used

Advantages

Reduces patient trauma and hospitalization

Allows for better control of tools and instruments

Provides individualized user sensitivity

Provides real life training simulations for students

Institution

[University of Arizona](#)

Inventors

[Minsik Hong](#)

Graduate Assistant, Research
Electrical and Computer Engr

[Jerzy Rozenblit](#)

University Distinguished Professor
Electrical & Computer Engineering

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com