

Surgical Robots Chairs: Paolo Dario, F. Pierrot

Motion/Force/Image Control of A Diagnostic Ultrasound Robot

W. H. Zhu, S. E. Salcudean, S. Bachmann and P. Abolmaesumi
University of British Columbia

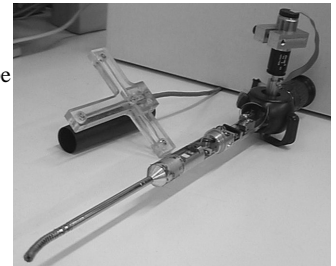
- An Ergonomic Interface to Sonographers
- 6-DOF Fully Counterbalanced Robot Designed for Safety
- Velocity Controller Achieving Position/Force/Image Control
- Ultrasound Visual Servoing Demonstrated



A Semi-Automatic Handheld Mechatronic Endoscope with Collision-Avoidance Capabilities

S. D'Atanasio, O. Tonet, G. Megali, M. C. Carroza and P. Dario
Scuola Superiore Sant'Anna

- Add collision-avoidance loop in a servo-controlled endoscope
- Spatial accuracy of 1.8mm and refresh rate of 12Hz
- The system is suitable for clinical trials



Realistic Force Feedback for Virtual Reality Based Diagnostic Surgery Simulators

V. Vuskovic, M. Kauer and G. Szekely
Swiss Federal Institute of Technology

- Modelling of soft tissue deformation is central for general surgery simulators
- Here, a nonlinear viscoelastic model for soft biological tissues is used
- A novel device for in-vivo measurement of material parameters is presented
- First experiments on dead animal tissues with validations are given



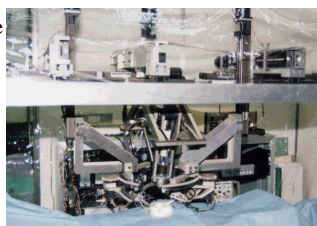
Biomechanical Modeling of the Small Intestine as Required for the Design and Operation of a Robotic Endoscope

H. D. Hoeg¹, A. B. Slatkin¹, J. W. Burdick¹ and W. S. Grundfest²
¹California Institute of Technology and ²Cedars Sinai Medical Center

Tele-micro-surgery system with intelligent user interface M. Mitsuishi¹, S. Tomisaki¹, T. Yoshidome¹, H. Hashizume² and K. Fujiwara²

¹University of Tokyo and ²Okayama University Medical School

- A tele-micro-surgery system with an intelligent user interface was developed.
- Automatic 3D positioning was realized using
- A micro-blood-vessel of a rat of 0.3mm diameter was successfully sutured.



Robotized Reconstructive Surgery: Ongoing study and First Results

Francois Pierrot¹, Etienne Dombre¹, Luc Teot² and Eric Degoulange³

¹LIRMM, ²Lapeyronie Hospital and ³SINTERS

- Goal: Help in surgery for severely burnt patients
- Background: Study of expert surgeons behavior
- Mean: Force controlled robot
- Result: Good skin grafts obtained (on animal)

