



# AN INNOVATIVE SMART SOLUTION FOR SPINE SURGERY

Eng. Marina Carbone



# Team



CENTER FOR ENDOCRINE ASSISTED SURGERY



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 Biomedical Eng., PhD in Robotics Science and Engineering at Sant'Anna  
 research and development @ EndoCAS - 5 years experience



**Sara Condino** - *Certified in Endo and Taping*  
 Biomedical Eng., PhD in Robotics Science and Engineering at Sant'Anna  
 research and development @ EndoCAS - 6 years experience



**Vincenzo Ferrari** - *Chief of Endo Unit*  
 Computer science, PhD in Robotics Science and Engineering at Sant'Anna  
 Technical/scientific R&D coordinator @ EndoCAS - 5 years experience

**Paolo Parodi**



**Mauro Ferrari** - *Chief of Endo Unit*  
 General and Vascular Surgeon, Prof. at Sant'Anna - 6 years experience  
 member of the **Clinical Advisory Board**  
 co-inventor of the **EndoCAS** patent,  
 extensive experience in spine surgery  
**Mauro Ferrari** - Radiologist, PhD.

Consolidated experience radiological images elaboration  
**Mauro Ferrari** - General and Vascular Surgeon, Prof.  
 director of a clinical /surgical department

# Current activity

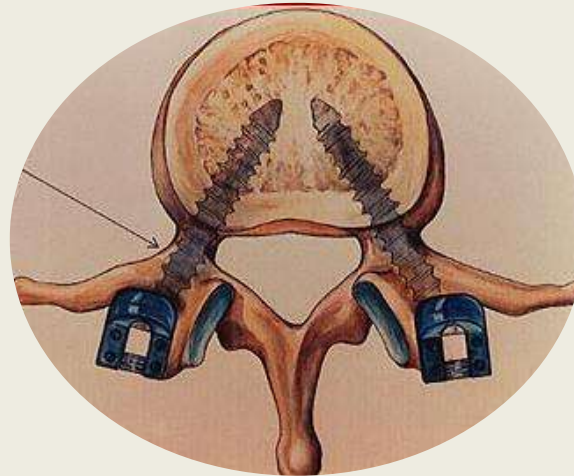
*Medical and surgical ad-hoc solutions based on the elaboration of radiological images*

## THE FUTURE

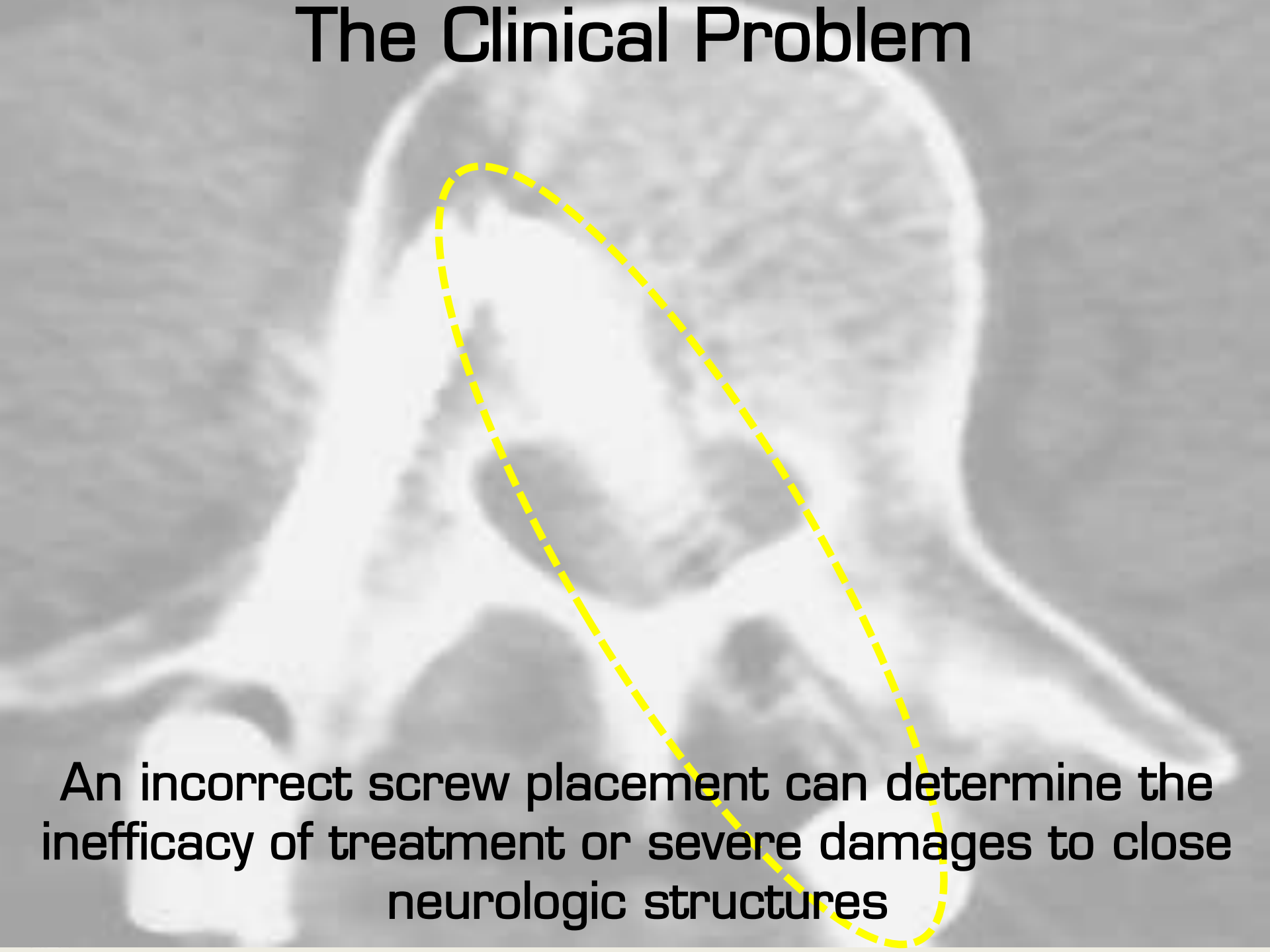
*Surgical templates for spinal fusion surgery*

# Spinal fusion surgery

- Scoliosis
- Stenosi spinale
- Spinal infections
- Bone tumors
- Spinal cord tumours
- Spinal trauma
- ...



# The Clinical Problem



An incorrect screw placement can determine the inefficacy of treatment or severe damages to close neurologic structures

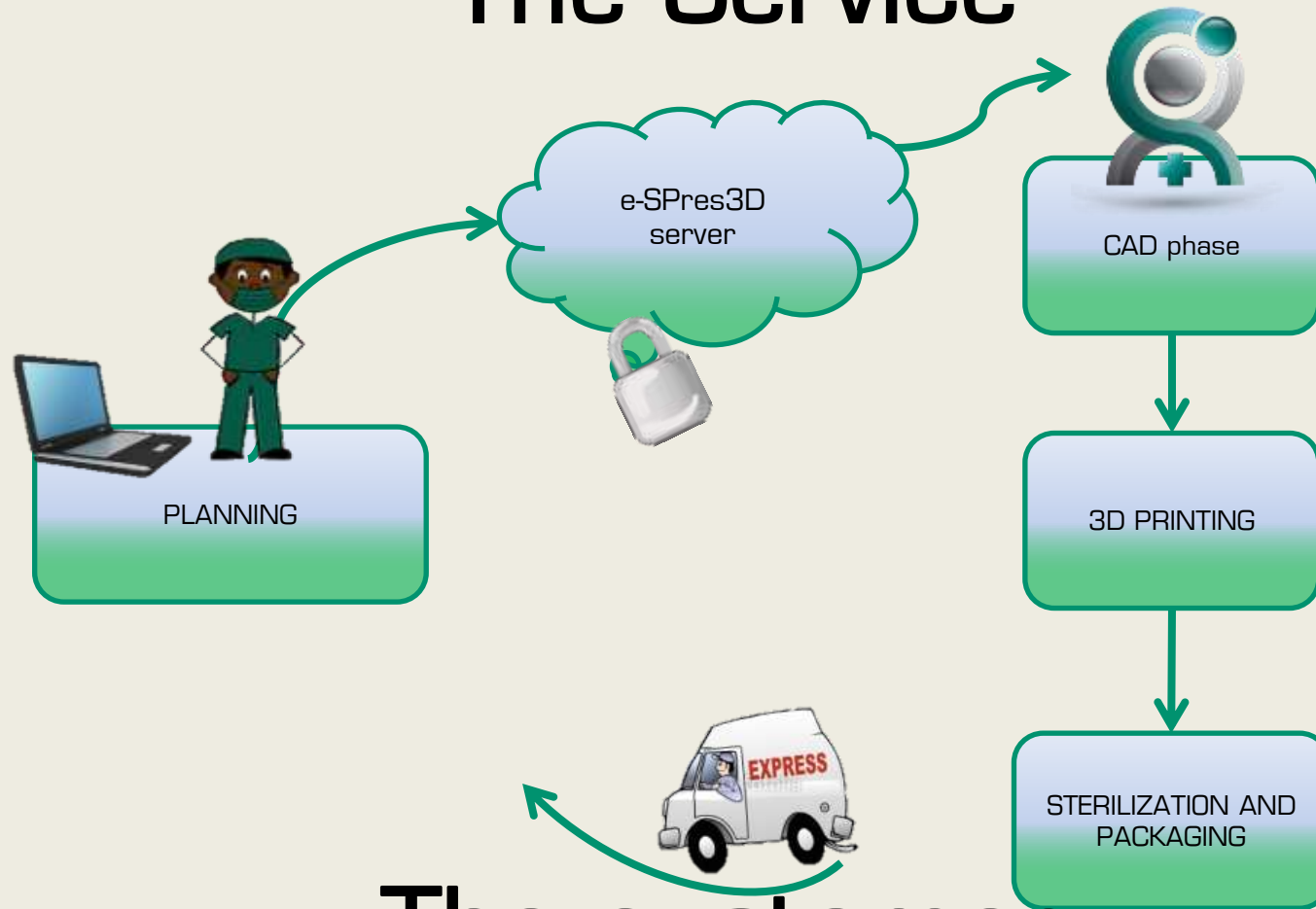


# The solution



- Customized surgical templates , radiological images-derived
- The surgeon preoperative plan is transferred to the operative site, guiding the surgical drill to the optimal entry point and along the best trajectory

# The Service



# The customer

Orthopaedic clinics

Manufacturers of spinal implants

# Advantages

## for the patient and for the hospital

- *Improvement in precision*
  - *Less Intraoperative complications ( - 48%)*
  - *Fewer reoperations (- 92%) = - 400K€/year (hospital with 200 cases/year)*
- *Reduction of operative time*  
*20 min/vertebra vs 60 min/vertebra = - 450€/livello*
- *Reduction of anesthesia time*
- *Reduction of intra-operative x-ray exposition*





*la terza dimensione della cura del paziente*

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