

# Preoperative planning

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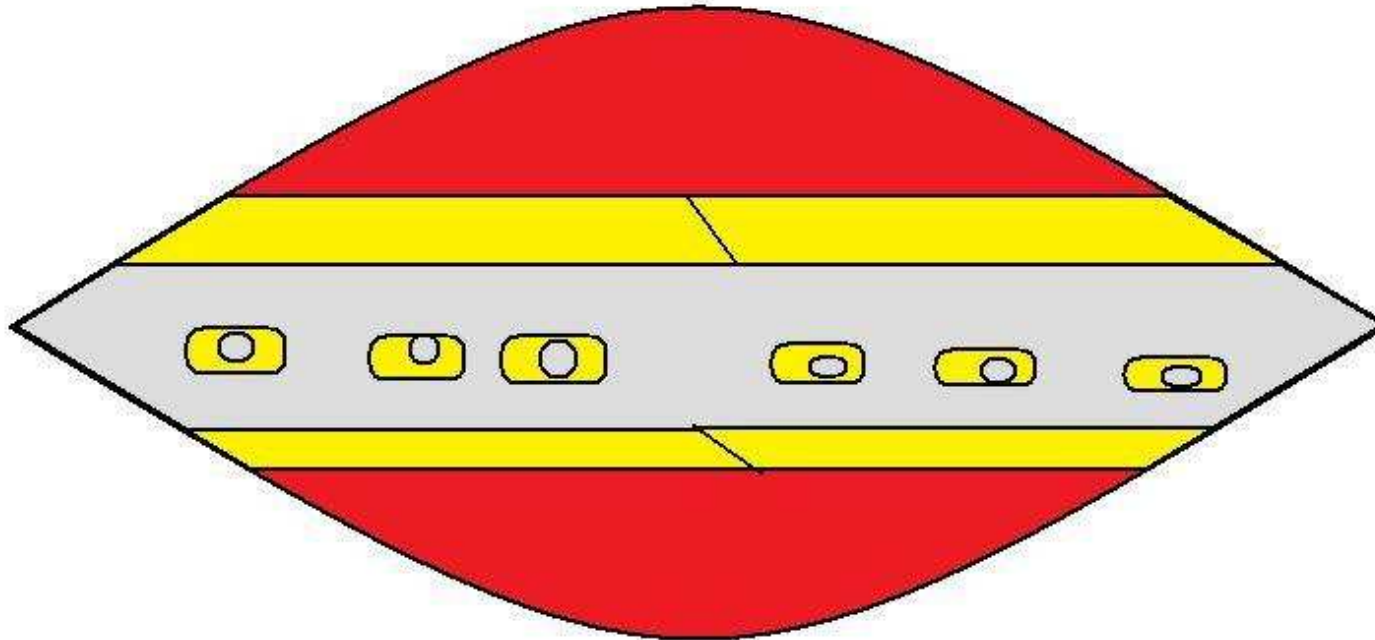


# Plan is the most important thing

(I heard it somewhere but, I don't know where)

- In our kind of surgery, plan is known

## **Internal fixation**

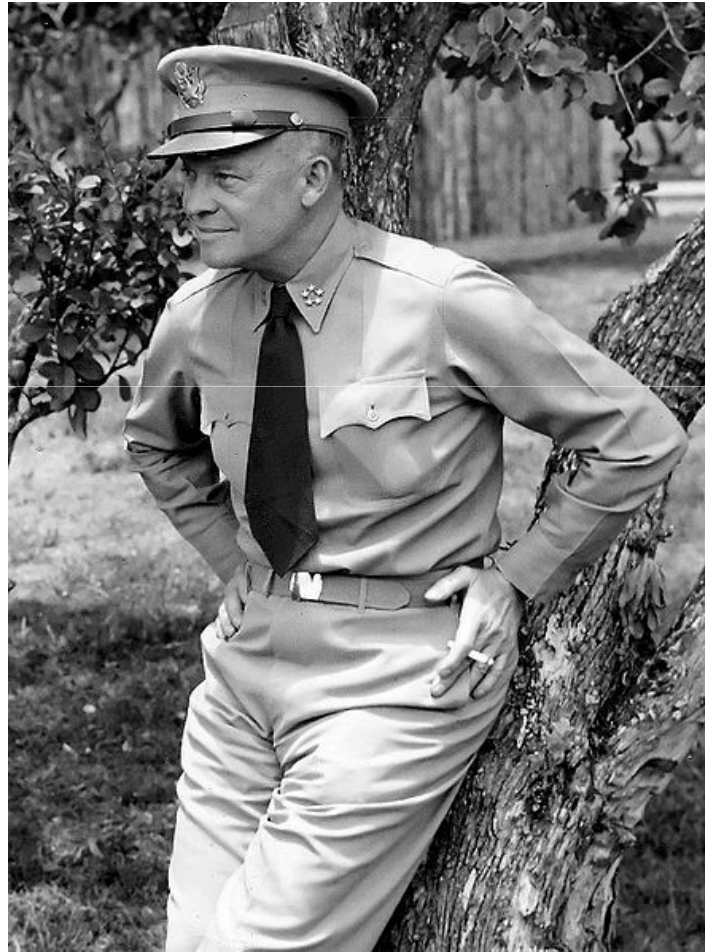


No battle plan survives contact with  
the enemy

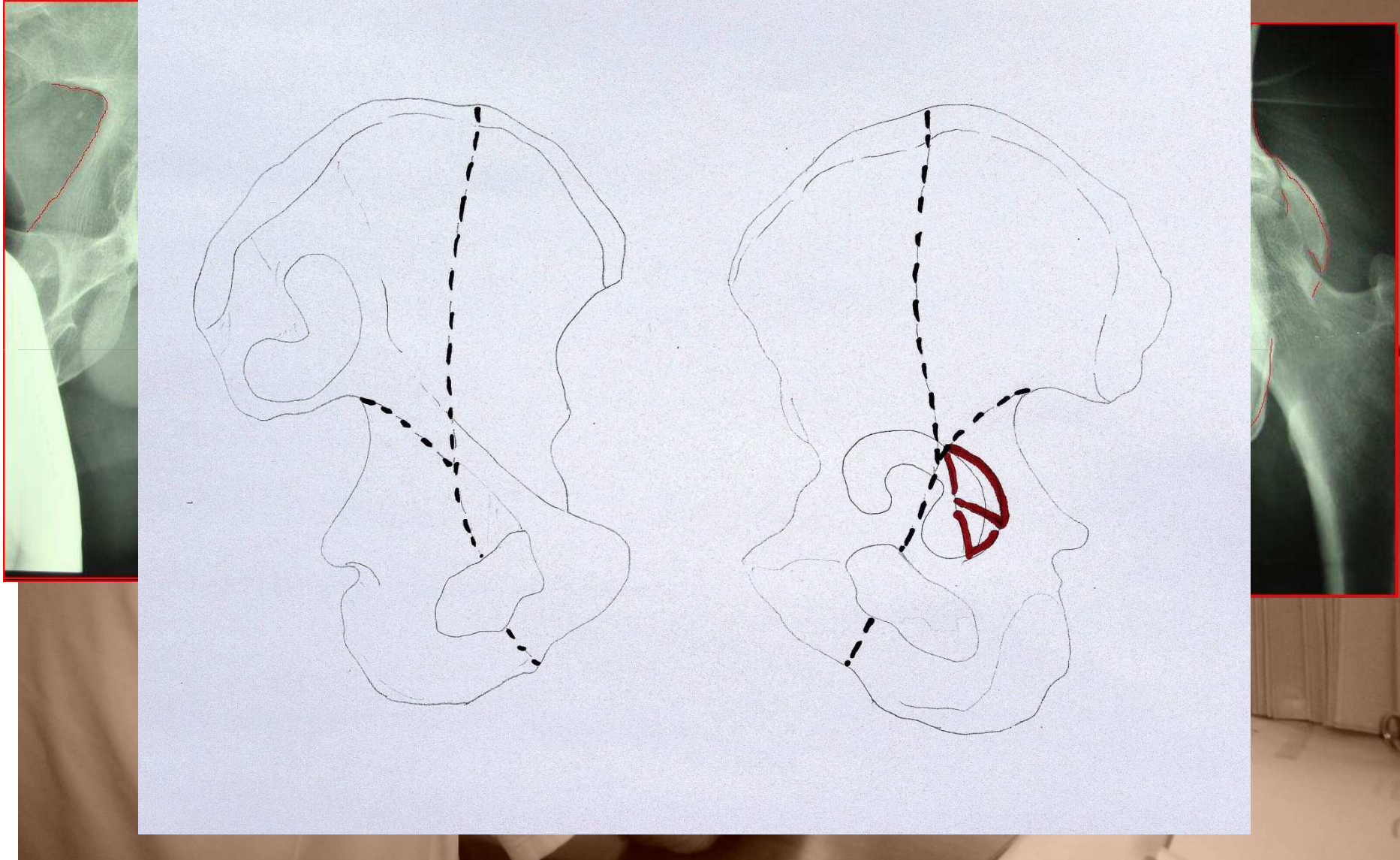
([Helmuth von Moltke the Elder](#))



Plan is nothing, to plan is everything  
([Dwight D. Eisenhower](#))



# Classic 2D planing



# 3D – planning modules

Unfallchirurg  
2001 · 104: 466–479 © Springer-Verlag 2001

Redaktion  
C. Krettek, Hannover

## Leitthema

C. Dahlen · H. Zwipp  
Klinik für Unfall- und Wiederherstellungschirurgie, Technische Universität Dresden

# Computer-assistierte OP-Planung

3D-Software für den PC

Injury, Int. J. Care Injured (2007) 38, 1158–1162



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**INJURY**  
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[www.elsevier.com/locate/injury](http://www.elsevier.com/locate/injury)

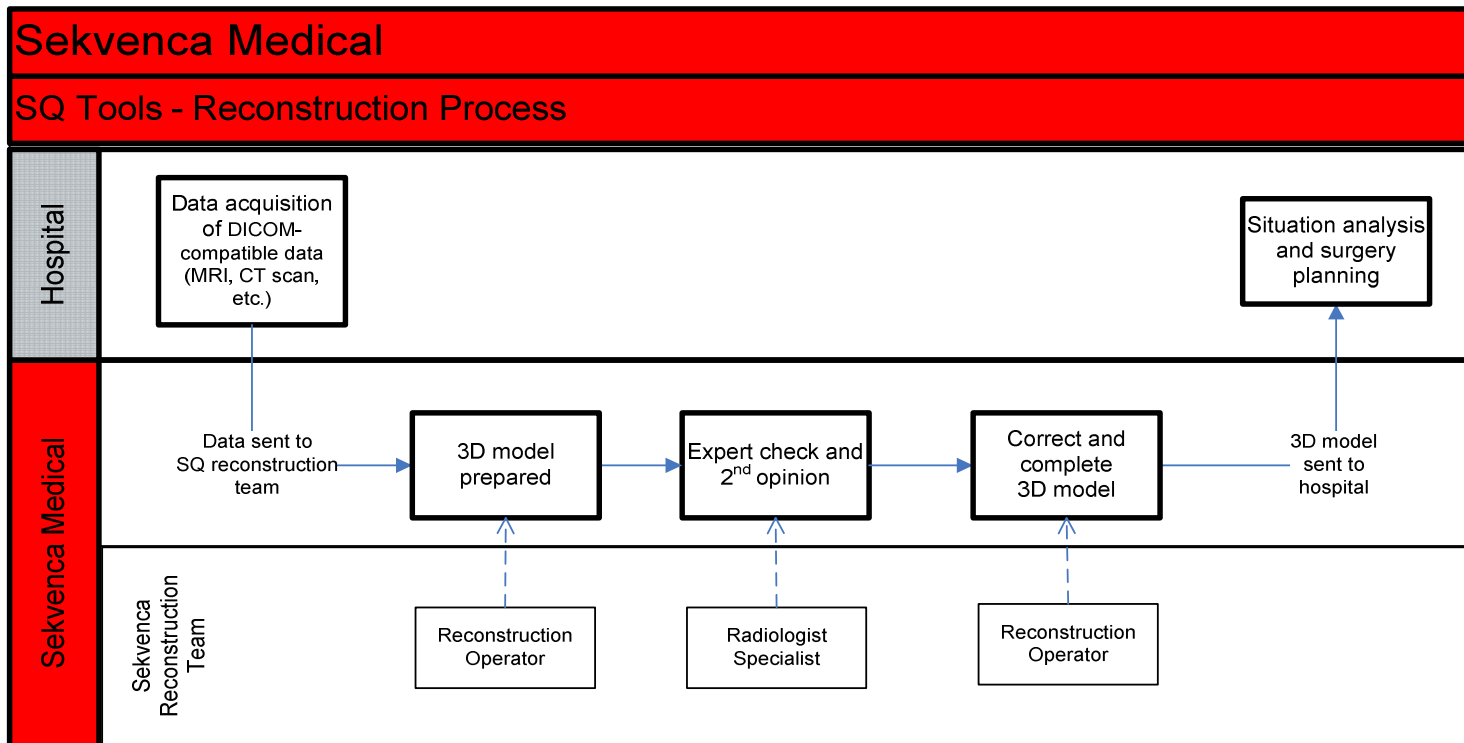
## Rapid prototyping in the assessment, classification and preoperative planning of acetabular fractures

C. Hurson<sup>a,\*</sup>, A. Tansey<sup>b</sup>, B. O'Donnchadha<sup>b</sup>, P. Nicholson<sup>a</sup>,  
J. Rice<sup>a</sup>, J. McElwain<sup>a</sup>

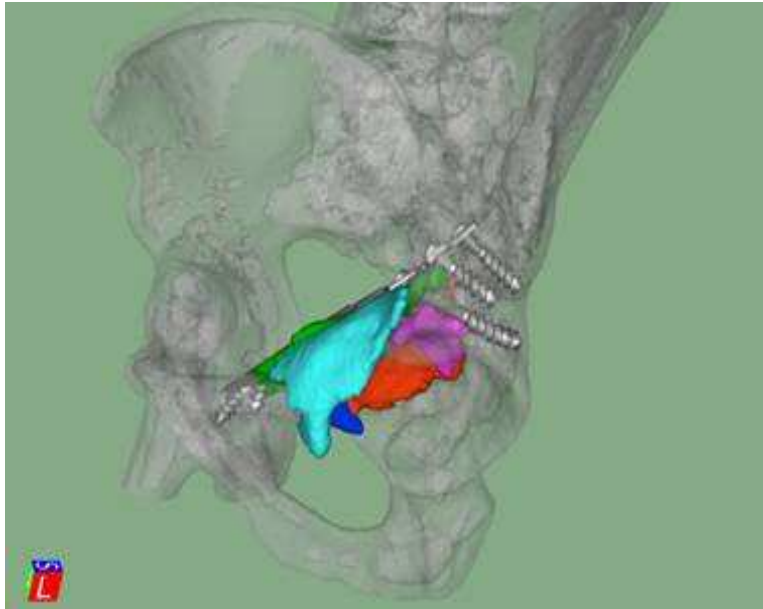
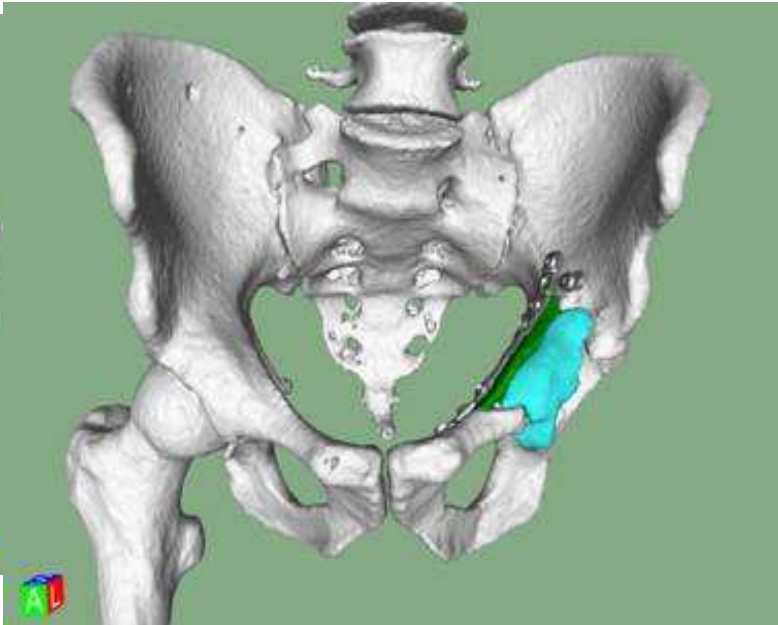
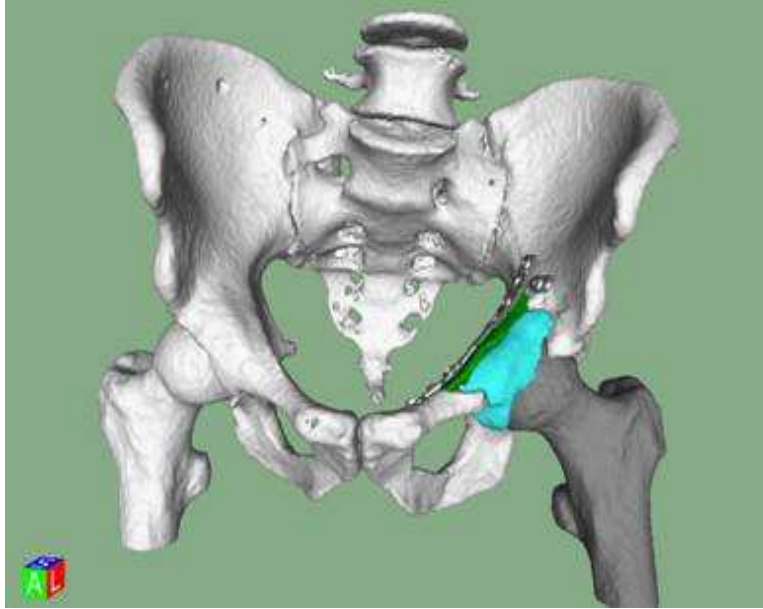
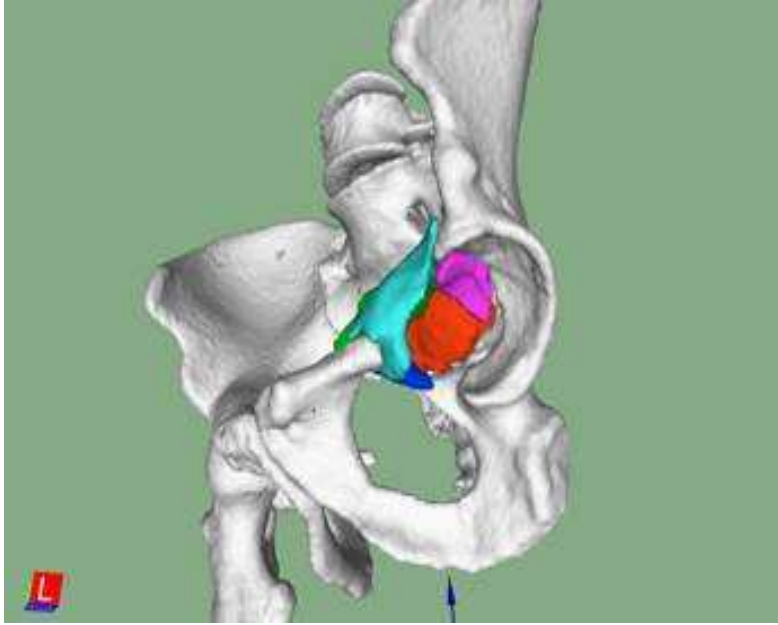
# SQ pelvis was developed

- 3D Diagnostics & Surgery Planning
- In **real-time**
- On **regular computers**
- For a wide range of surgical and other medical procedures
- **Decision-making tool** for border cases

# Protocol







# Preoperative planning in pelvic and acetabular surgery: The value of advanced computerised planning modules

Matej Cimerman<sup>\*</sup>, Anze Kristan

Injury, Int. J. Care Injured (2007) 38, 442–449



- International evaluation study in 10 centres
- The planned approach was carried in 24/26 cases
- Planned fixation was followed completely in 14 cases and partially in 11 cases
- Surgeons were completely satisfied with program in 12 cases, very satisfied in 12 cases and only satisfied in 1 case

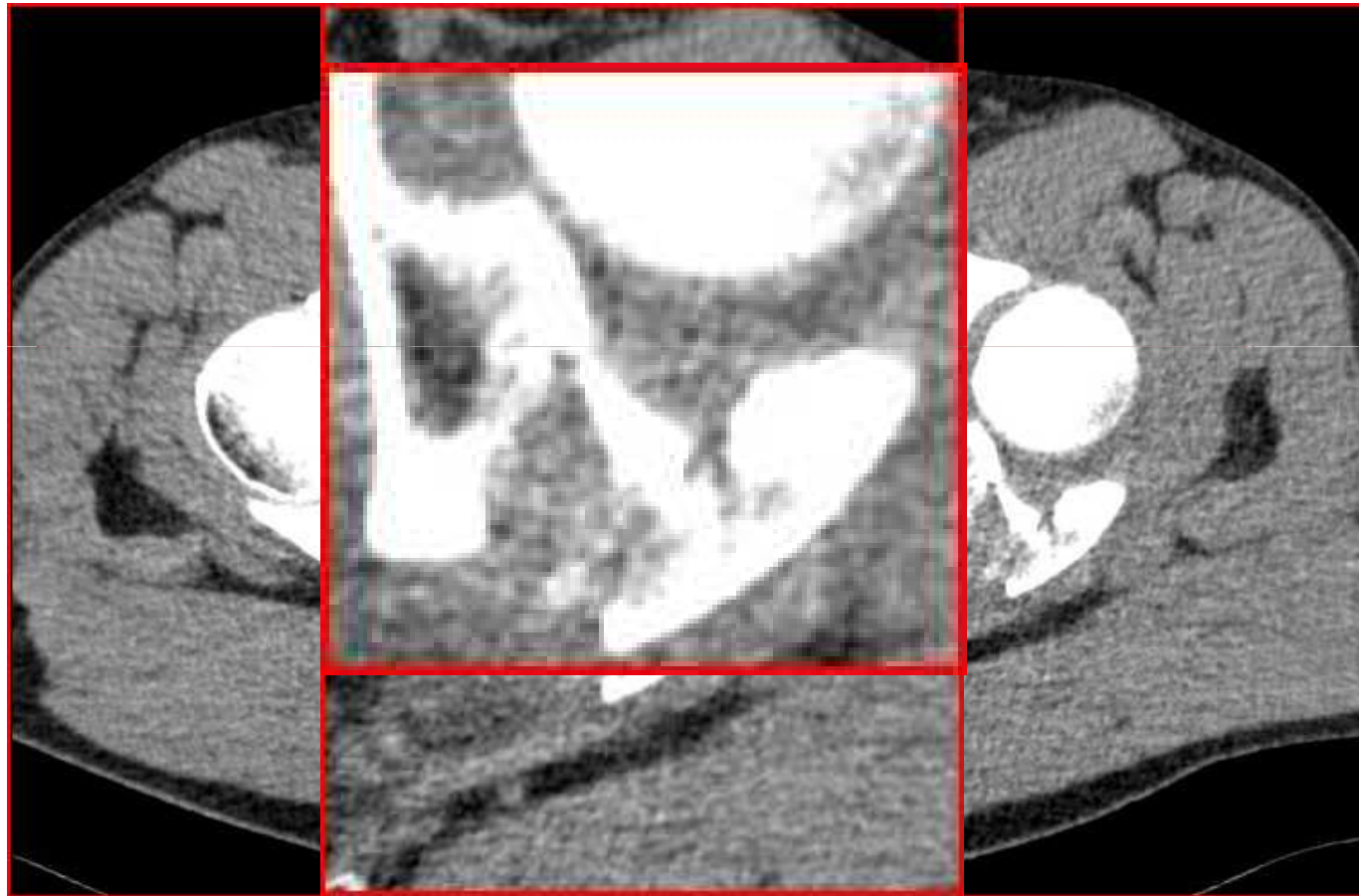
# Virtual 3D Planning of Acetabular Fracture Reduction

Musa Citak,<sup>1</sup> Michael J. Gardner,<sup>2</sup> Daniel Kendoff,<sup>1</sup> Ségolène Tarte,<sup>3</sup> Christian Krettek,<sup>1</sup>  
Lutz-Peter Nolte,<sup>3</sup> Tobias Hübner<sup>1</sup>

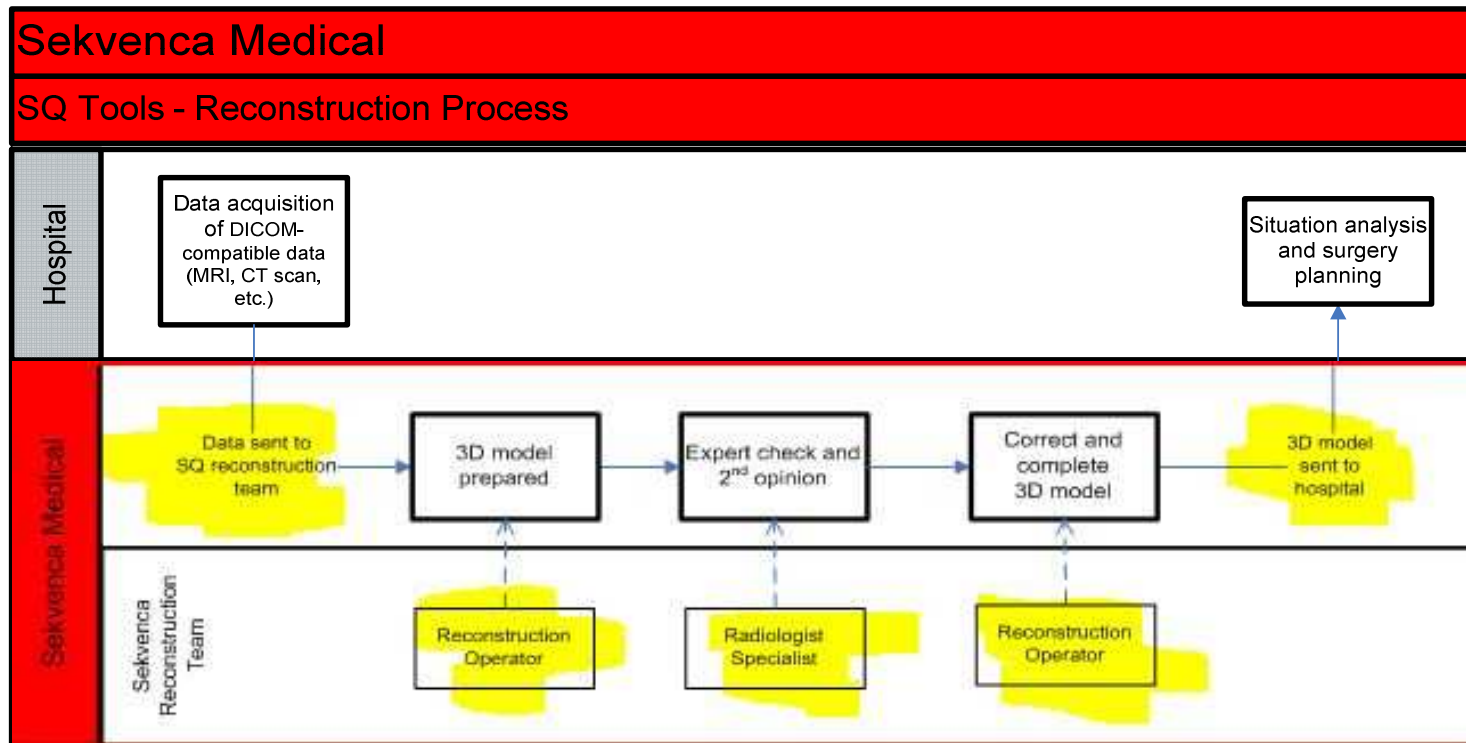
JOURNAL OF ORTHOPAEDIC RESEARCH APRIL 2008

- The purpose was to determine the effect of a virtual fracture reduction module on time and accuracy of reduction.
- Ten surgeons used a virtual fracture reduction software or conventional 2D planning methods and immediately reduced the fractures blindly in a viscous gel medium.
- The average malreduction and time taken was significantly improved following planning with reduction software.

Everything is in the eyes of the beholder



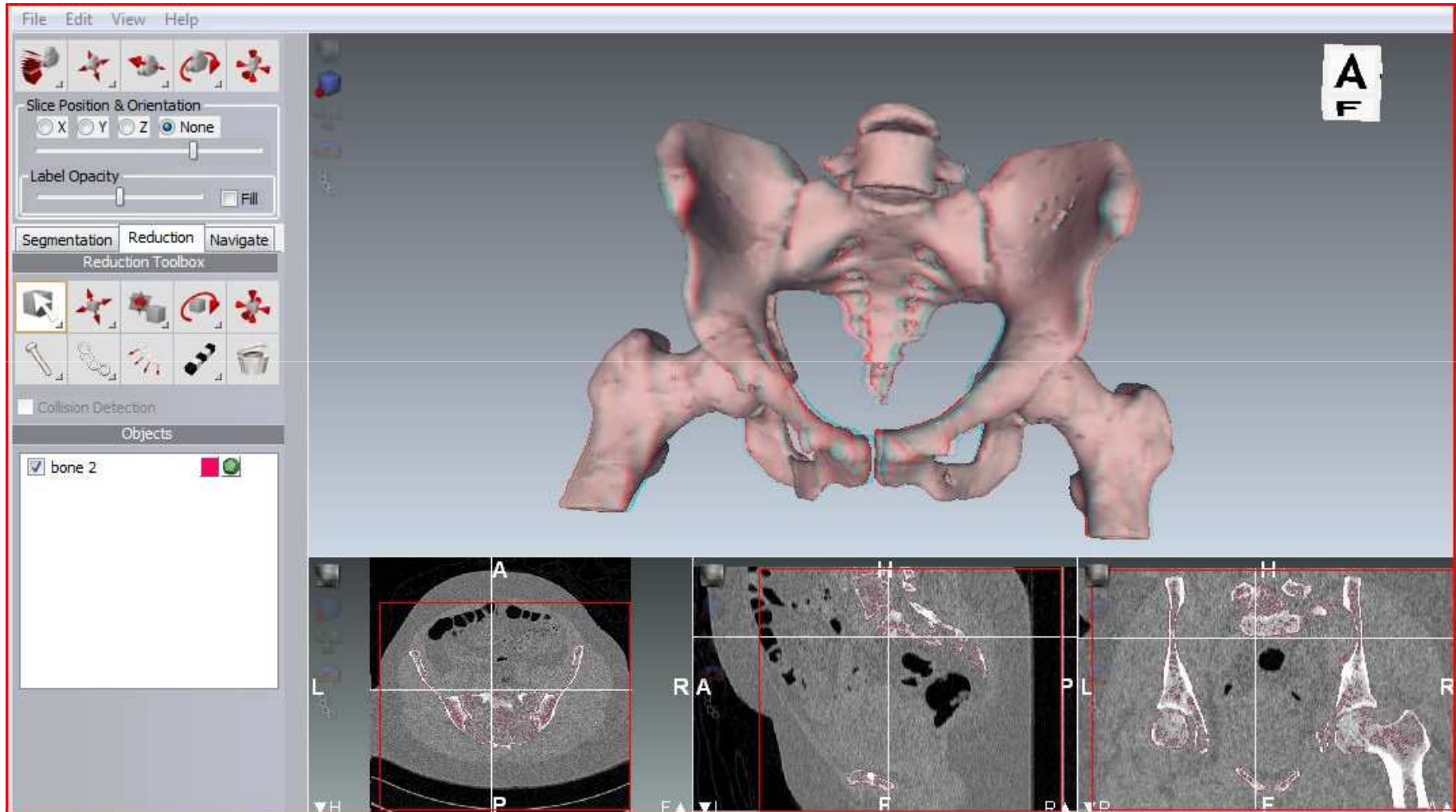
# SQ pelvis protocol had a problem



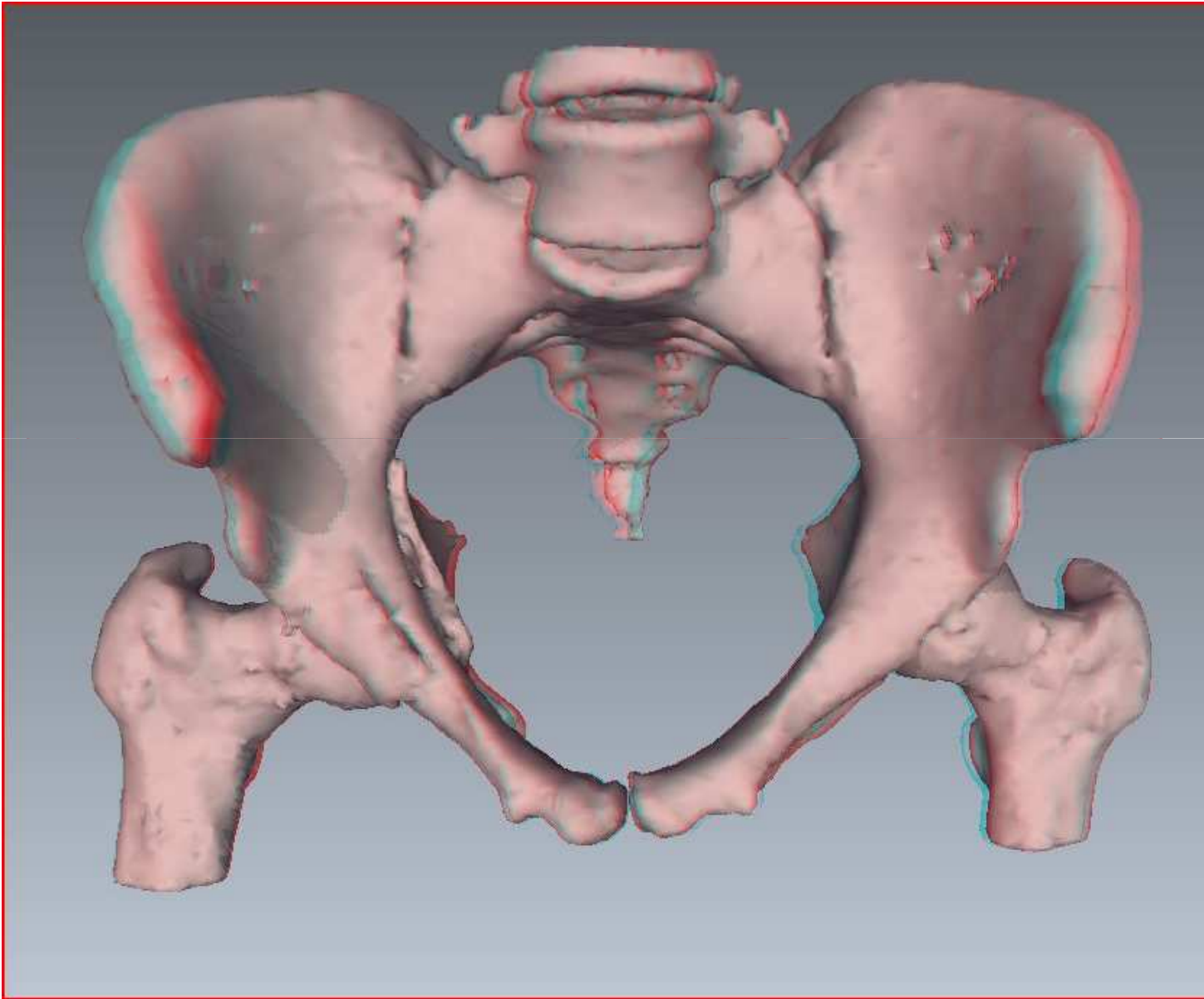
# EBS

- 3D Diagnostics & Surgery Planning
- Where you can do **everything by yourself on your own computer**
- In **real-time**
- On **regular computers**

# EBS

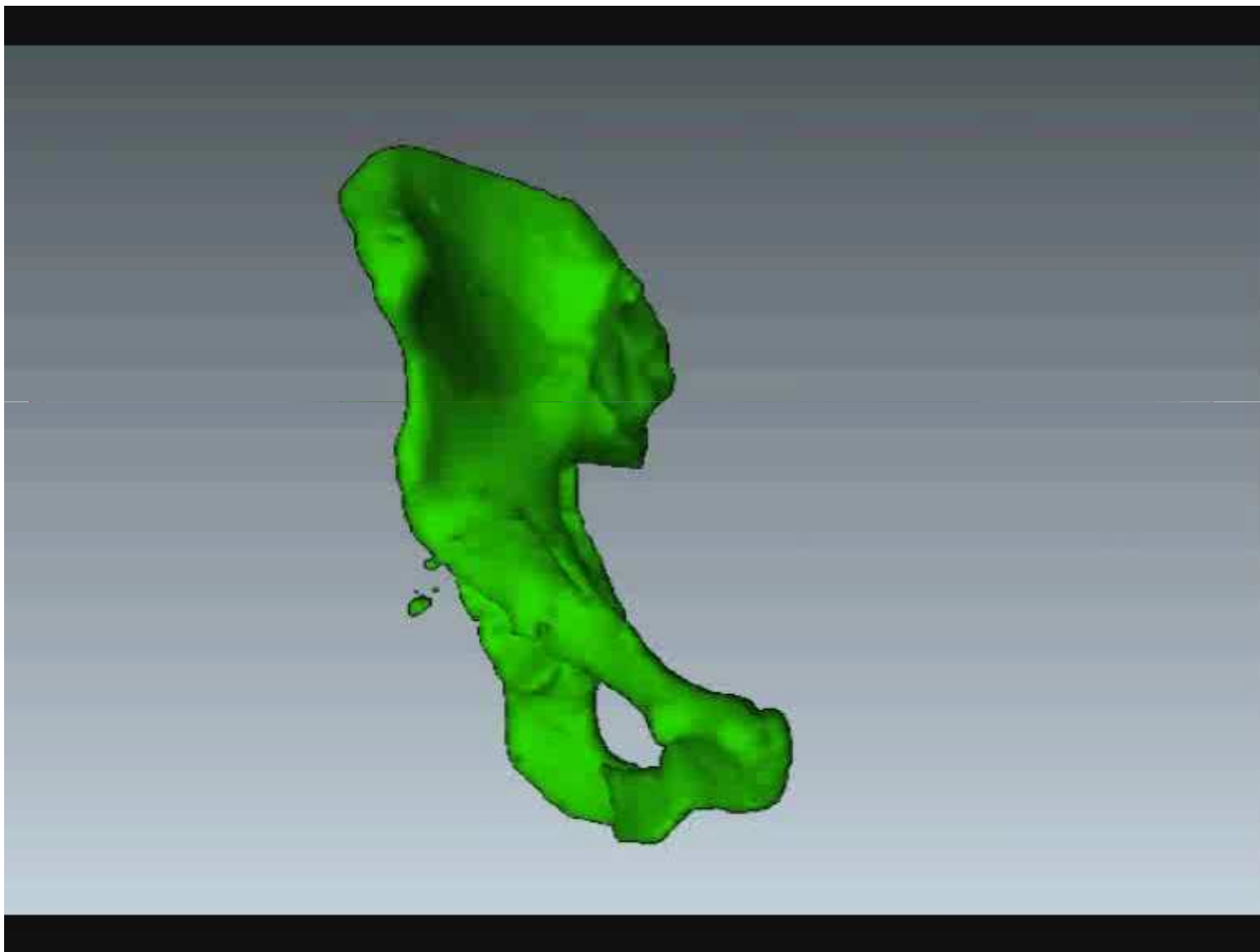


# Get the basic idea

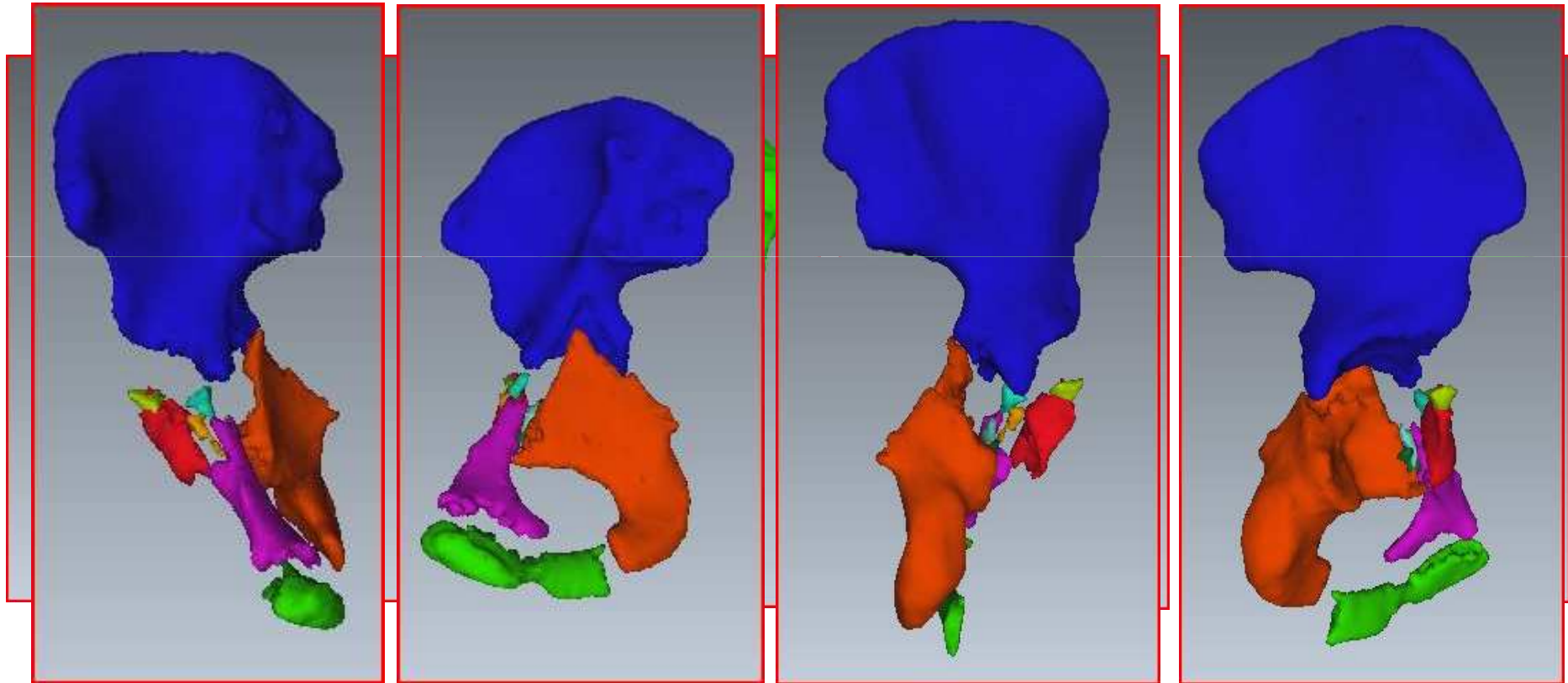




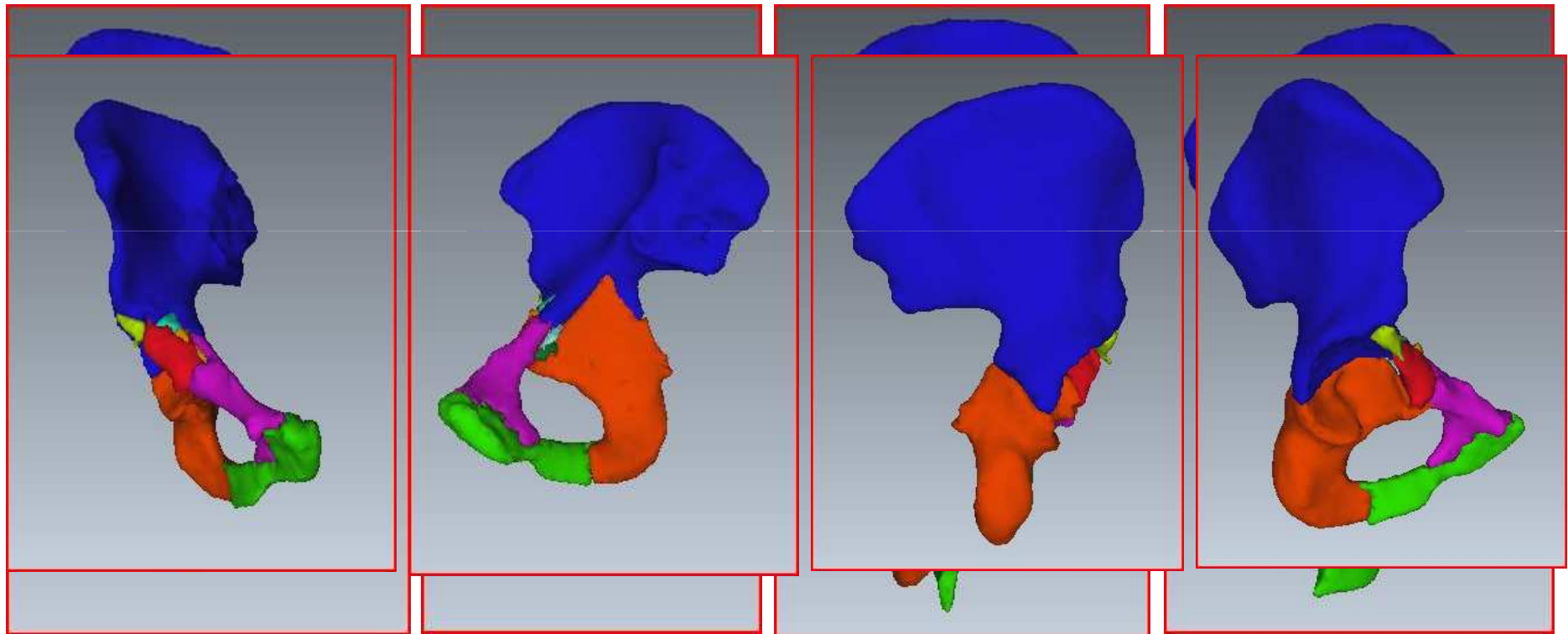
# Basic segmentation



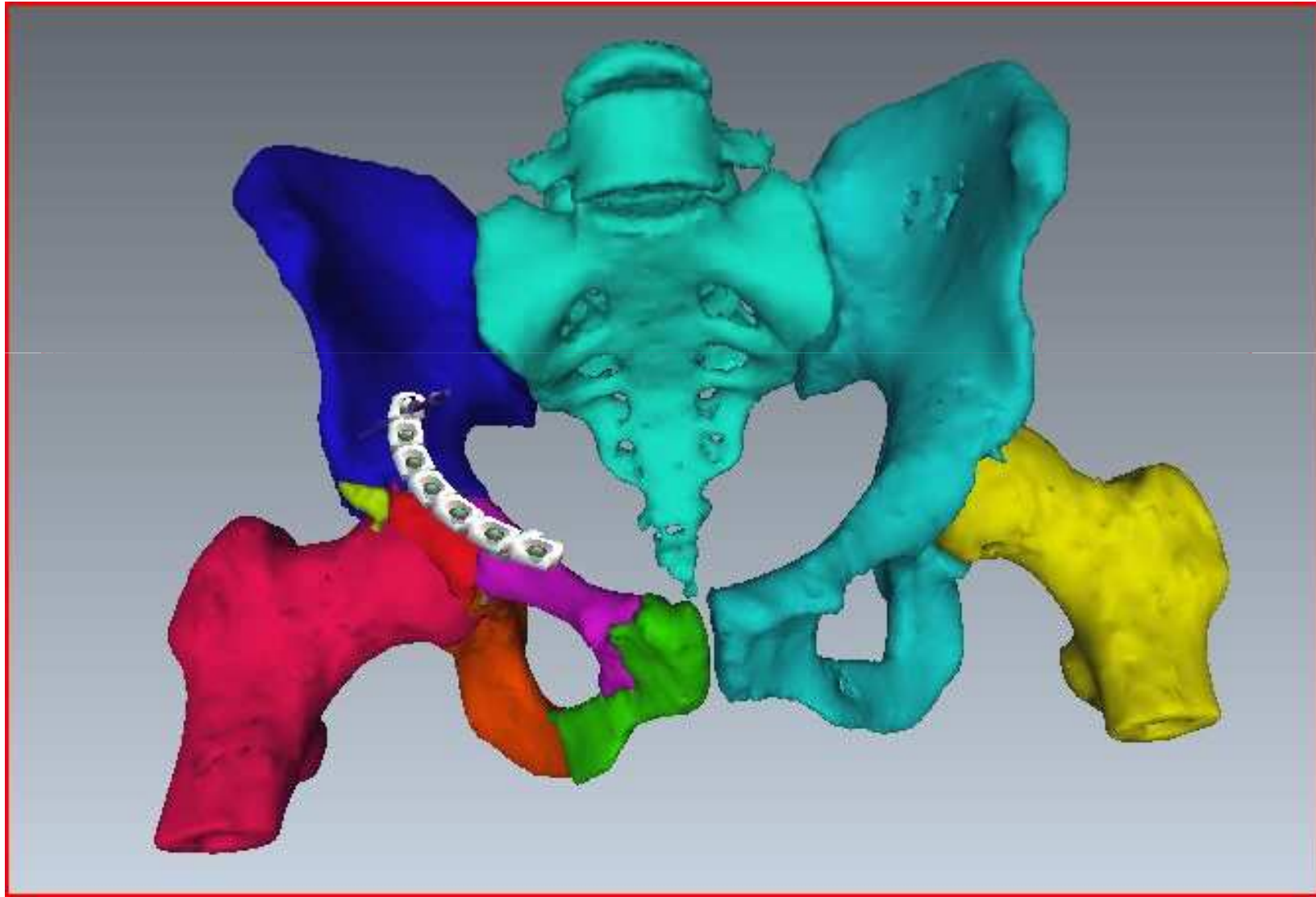
# Fracture segmentation



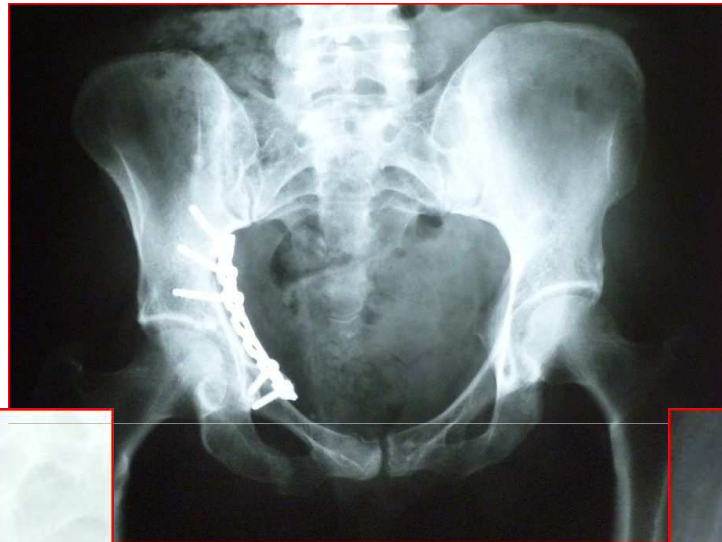
# Reduction



# Internal fixation



Plans are only good intentions unless they immediately degenerate into hard work  
(Peter Drucker)



# Why?

- Because planning is everything!
- Because 60 min of intensive work makes all the difference.
- Because it is fun!
- Because after a good planning, real fracture reduction makes you feel, just like another rehearsal

Adventure is just bad planning  
(Roald Admunson)



Thank you for yours  
attention!



Matevž Tomažević