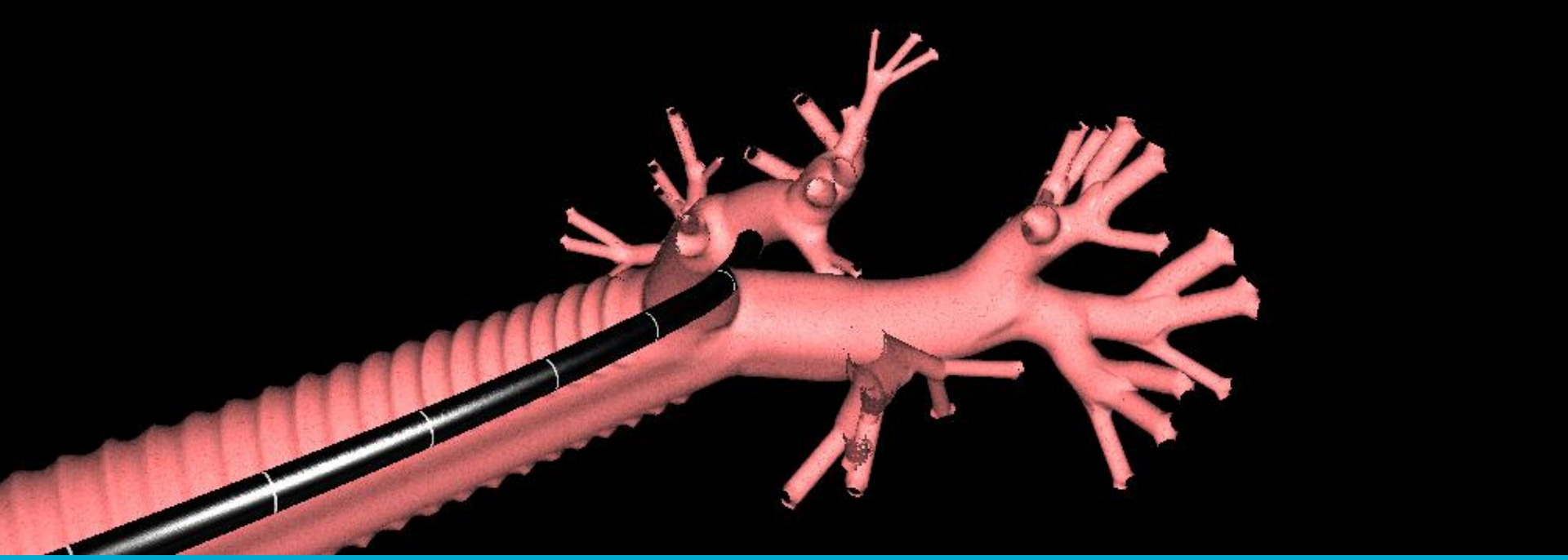


Bronchoscopy Training

Cédric Dumas and Tim Coles

27 March 2013

THE AUSTRALIAN eHEALTH RESEARCH CENTRE
www.csiro.au

National Research FLAGSHIPS CSIRO

Queensland Government

THE AUSTRALIAN E-HEALTH RESEARCH CENTRE

CSIRO

Training the medical workforce

Why Medical Training ?

- Proliferation of technology in the OR
- No obsolete methods
- New errors:
  - Poor design of technology ,
  - Rapidly changing technology ,
  - Insufficient knowledge or training
- General public awareness

Better use of existing resources

- Long life training
- Productivity
- Confidence of the workforce with tech.

Patient Safety (Off-patient training)


Open Surgery

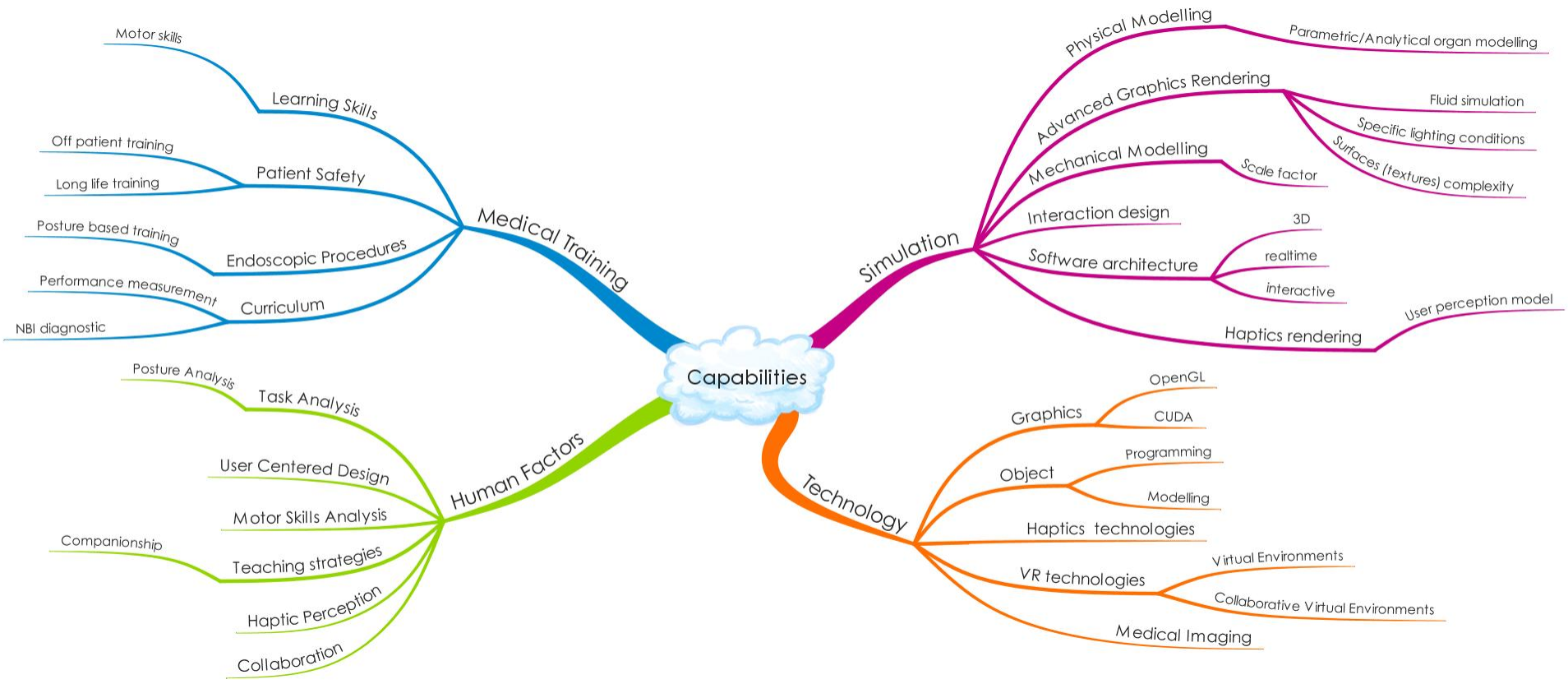

Endoscopy


Laparoscopy


NOTES


Robotic assisted surgery

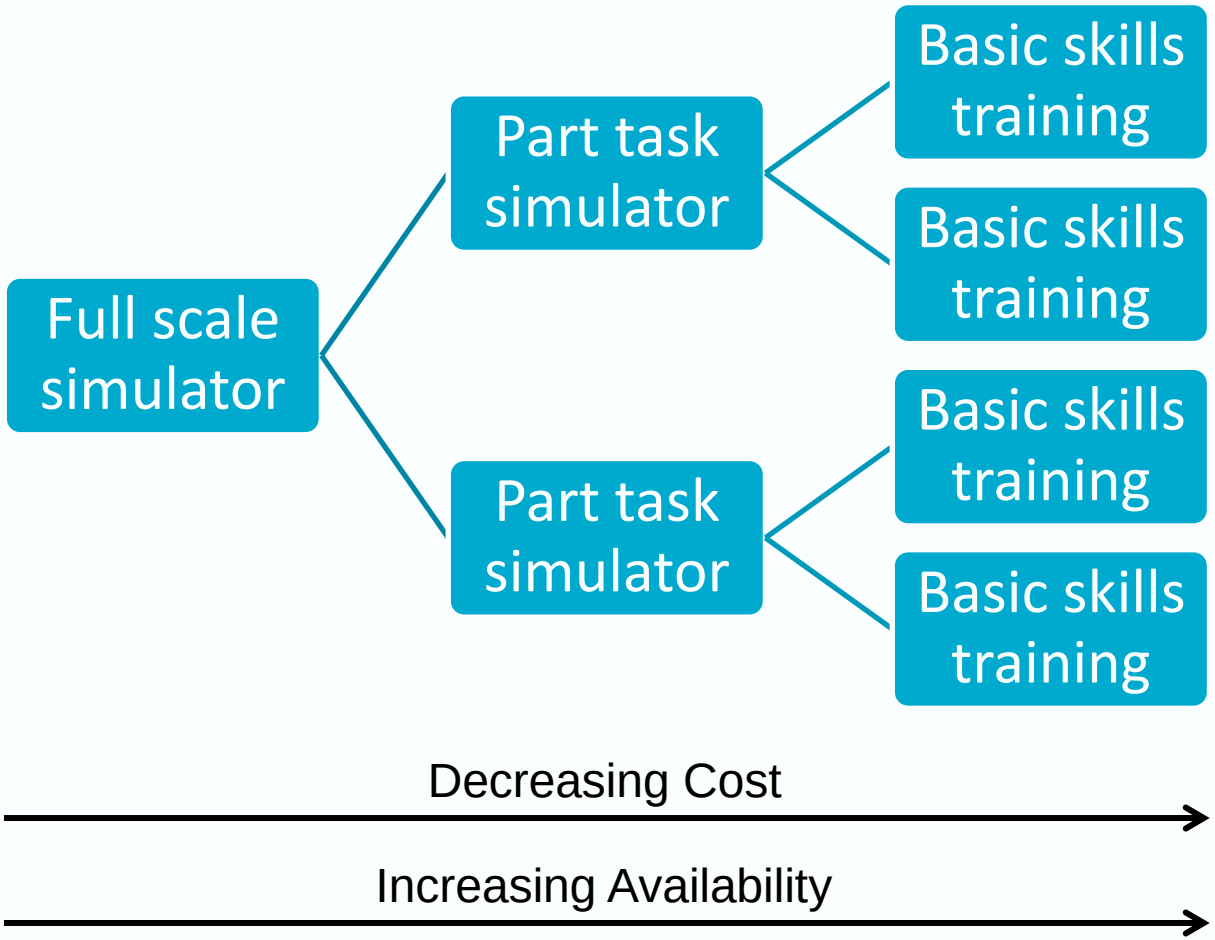
Surgical Simulation and Assistance team



Who and what needs training?

- Medical Students (needle insertion)
  - Generalised medical skills
- Specialising students (sophisticated interventions)
  - Specialised medical skills
- Experienced Practitioners (high level skills, new techniques)
  - Lifelong Leaning
    - Skills refresh
    - Dissemination of new skills
- Medical Teams (team communication)
  - Team interaction

Different types of training simulators



Bronchoscopy

A diagnostic intervention used to investigate pulmonary conditions

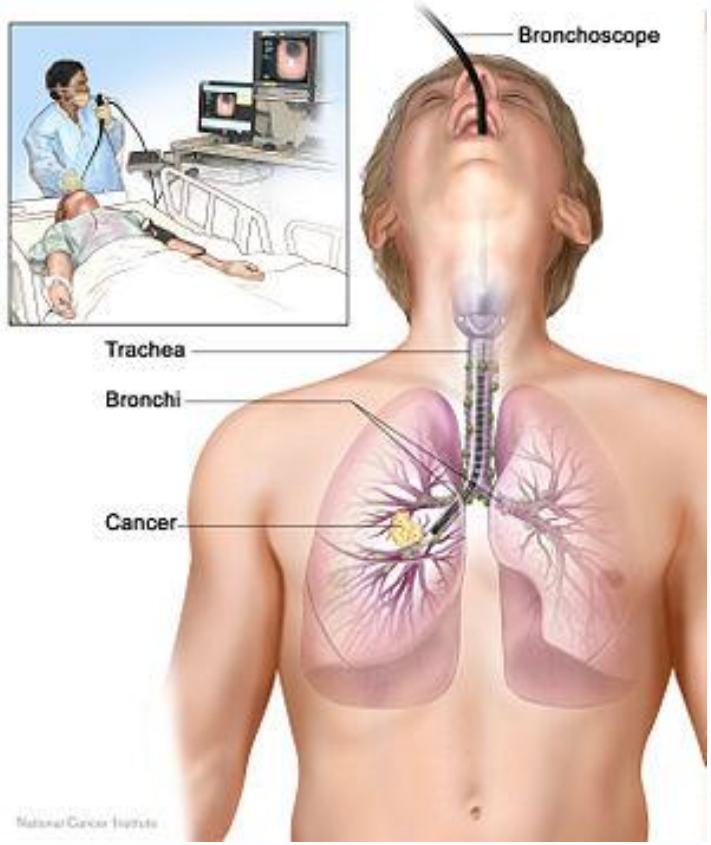
- Navigation of a flexible endoscope through a patient's tracheobroncial anatomy
- Locate and diagnose pathologies within the bronchial tree

Imaging Methods;

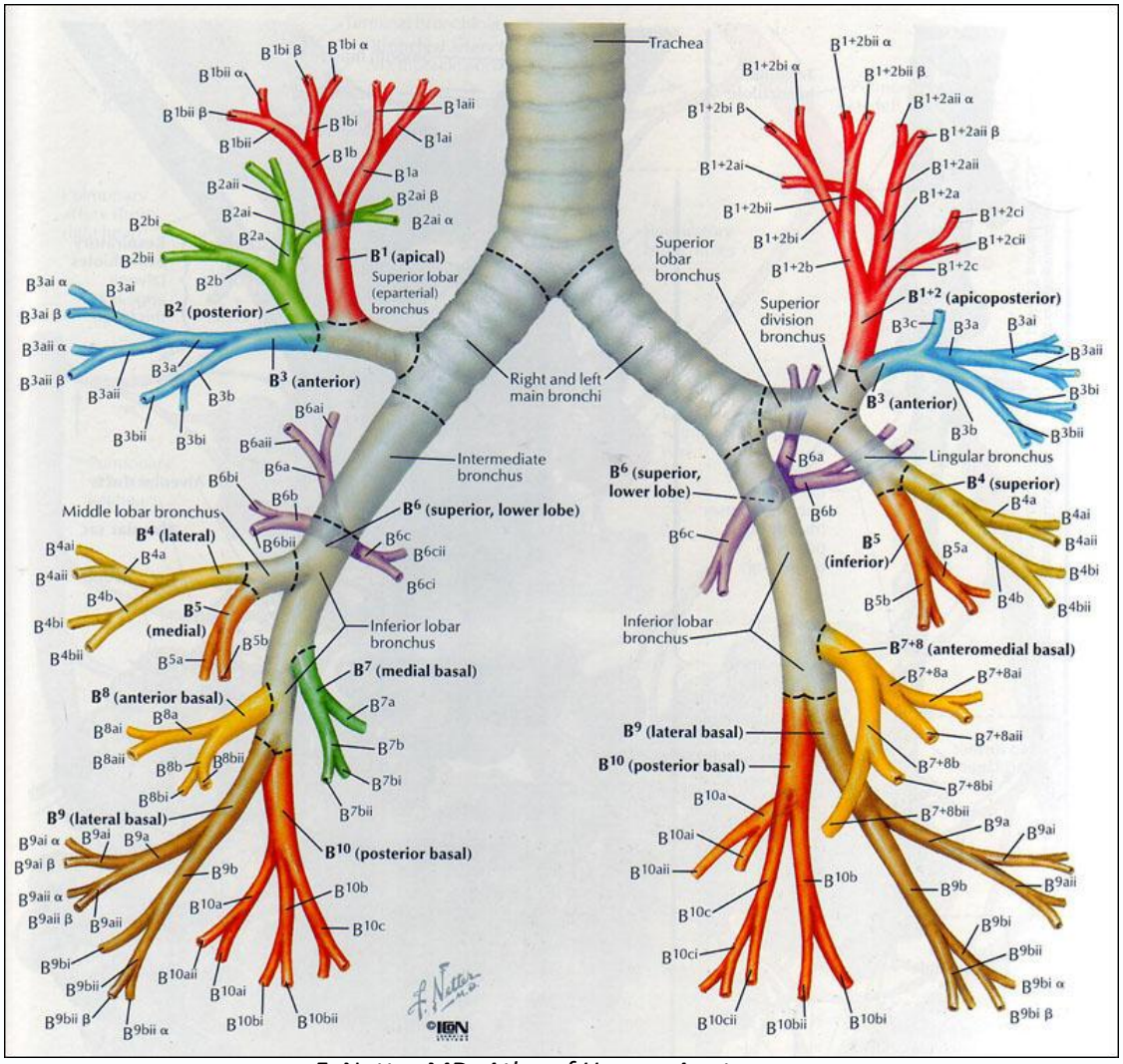
- White light, Autofluorescence, Narrow band, Ultrasound.

Diagnostic and Therapeutic

- Tools introduced through channel in Bronchoscope to obtain specimens



Lung Structure: External View



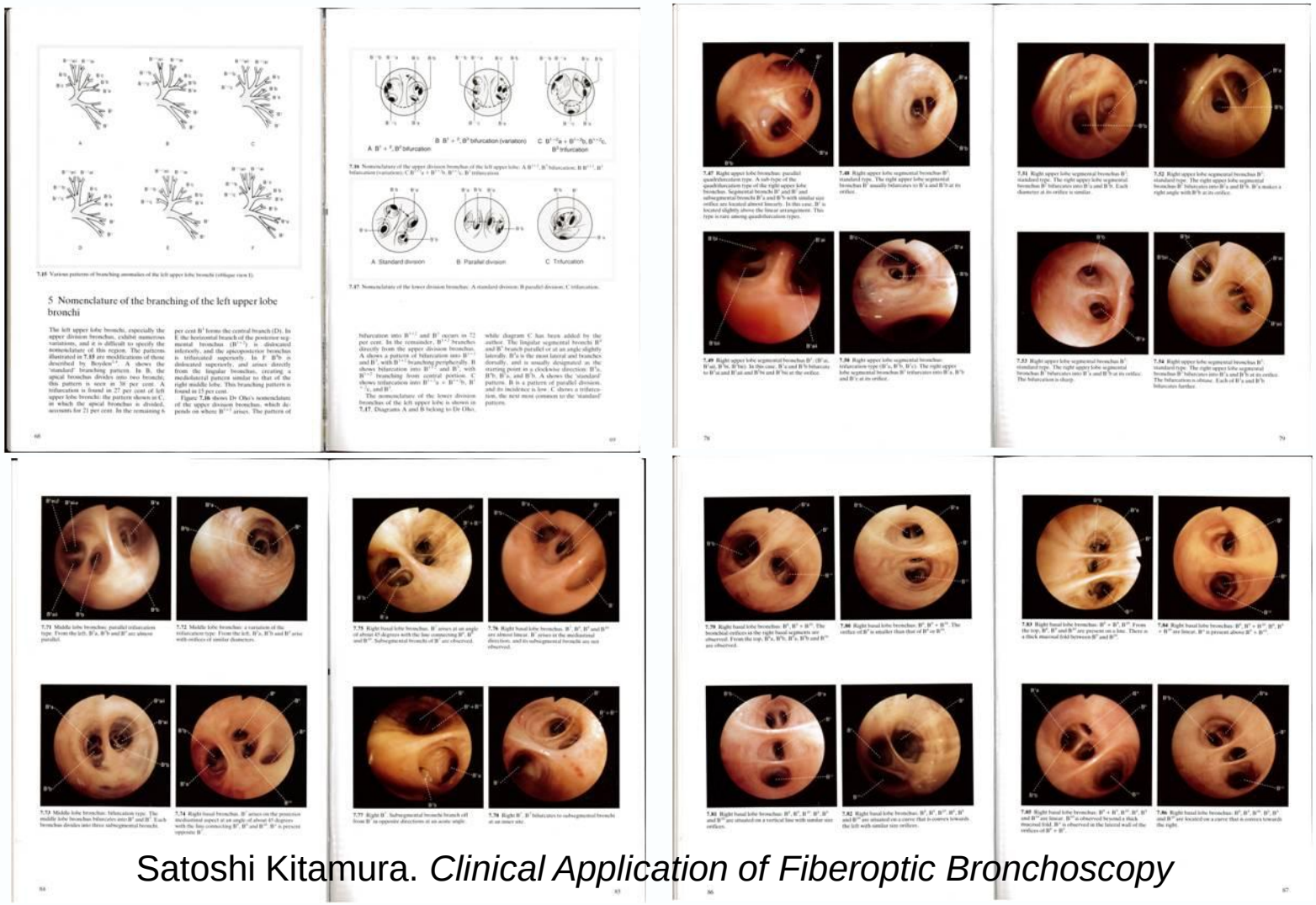
F. Netter MD, *Atlas of Human Anatomy*

How people work? Learn?

Task Analysis

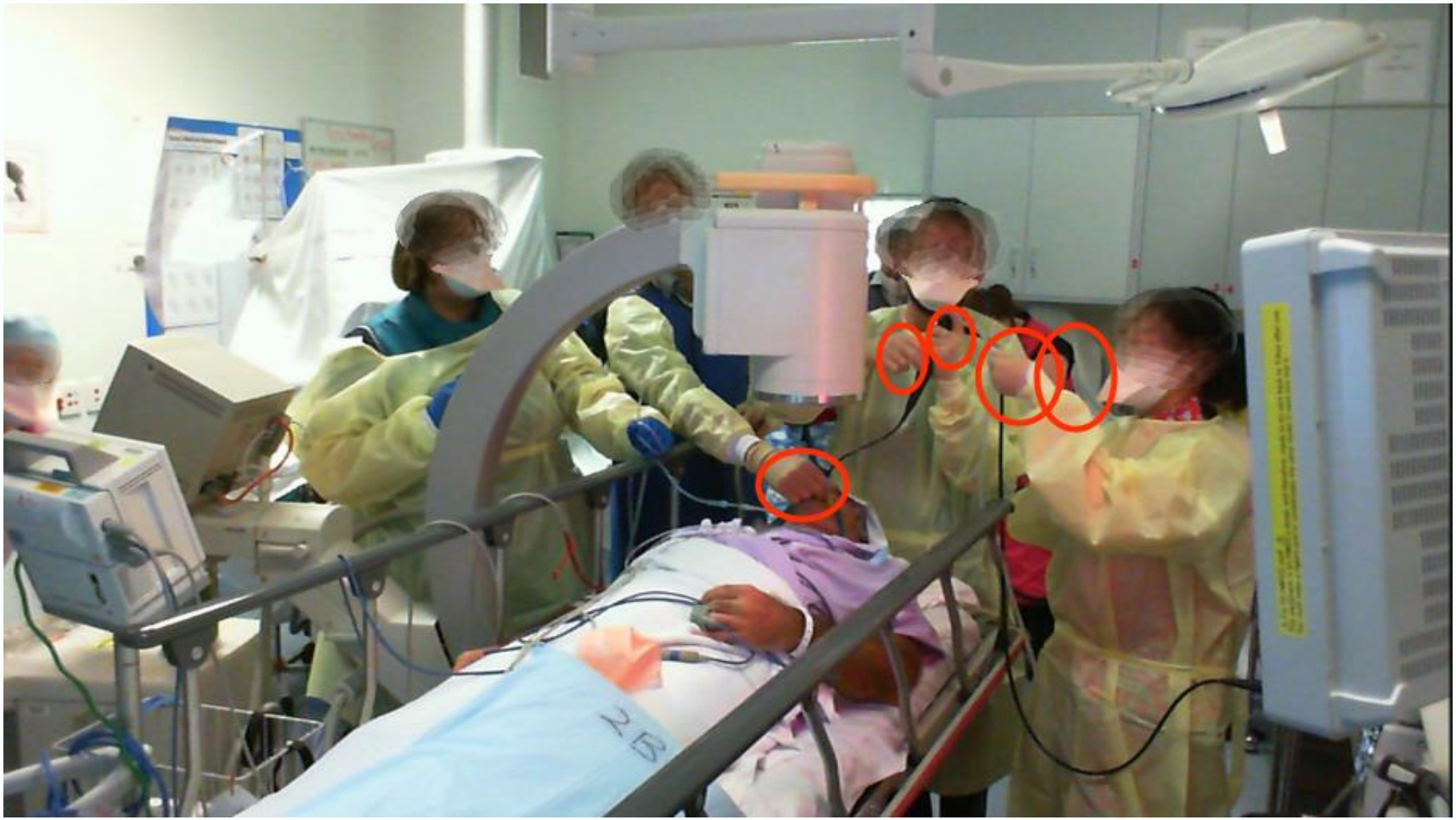
- Literature
  - Books
  - Guidelines
- Existing training knowledge
  - Woking with educators
    - Queensland Clinical Skills Development team
    - Expert thoracic mentors
- In vivo observations
  - Synchronised video recordings
  - Practitioner Interviews
- Controlled environment measurements
  - Detailed observations of training scenarios

Books

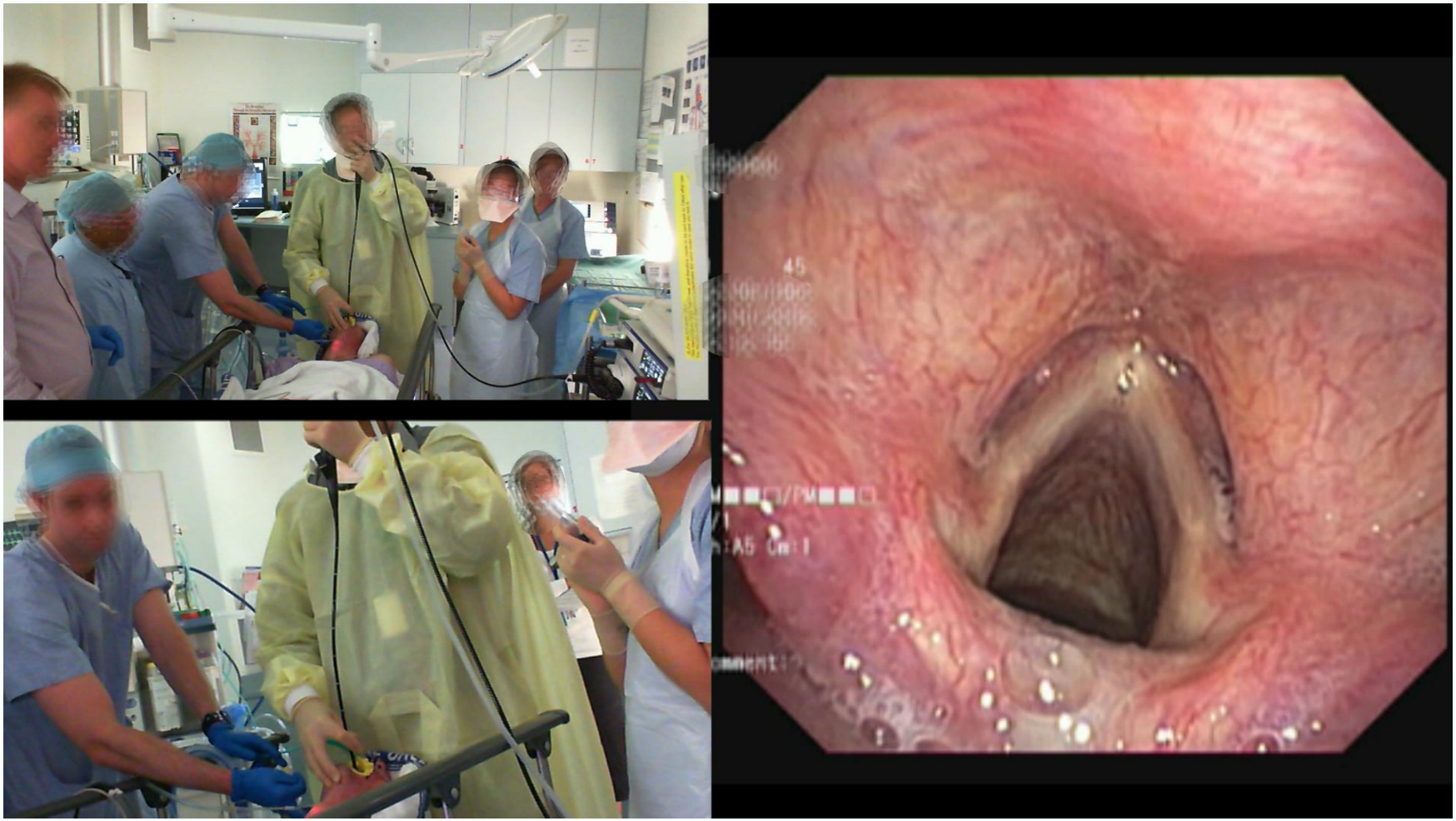


5 Nomenclature of the branching of the left upper lobe bronchi

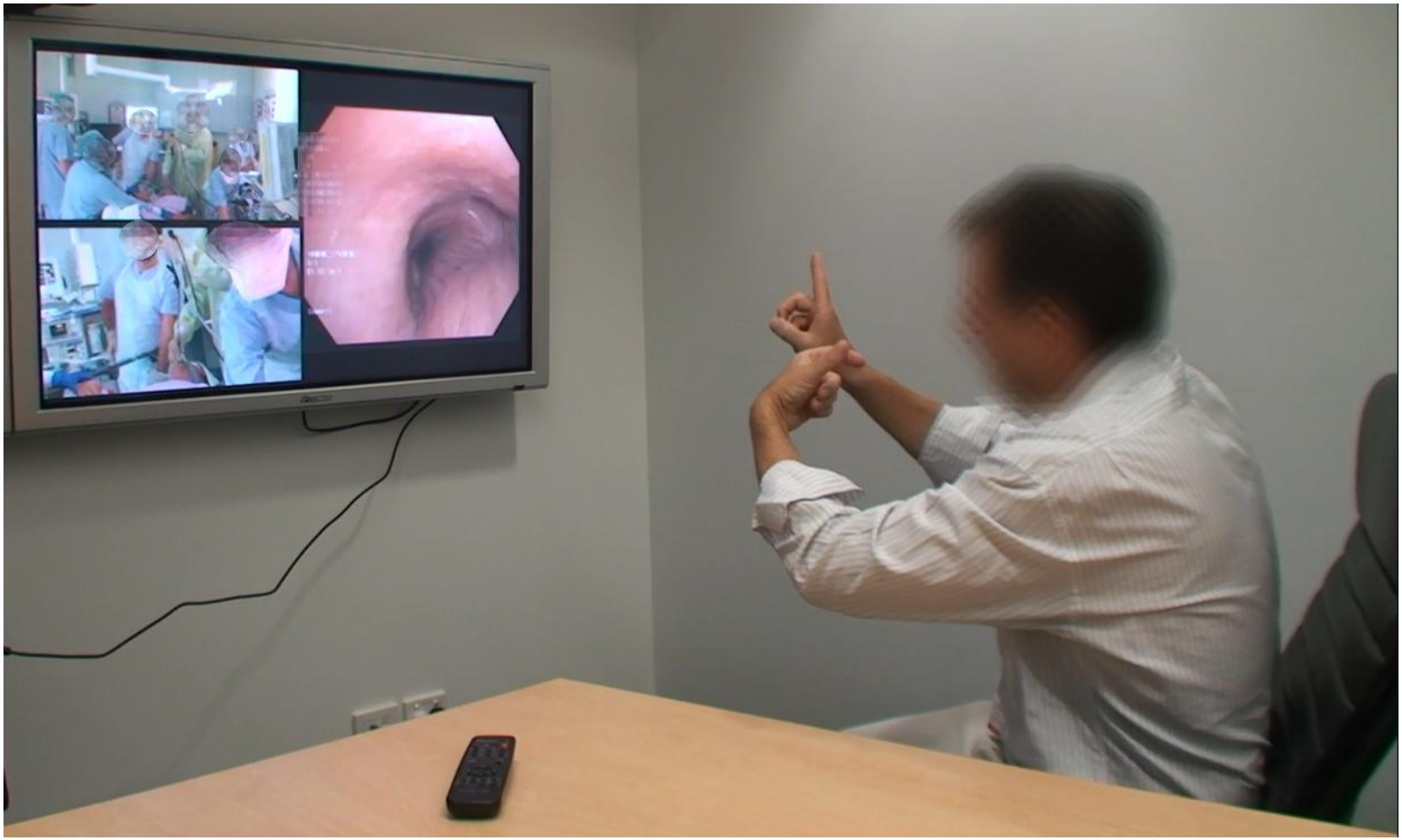
Satoshi Kitamura. *Clinical Application of Fiberoptic Bronchoscopy*



In vivo Video analysis

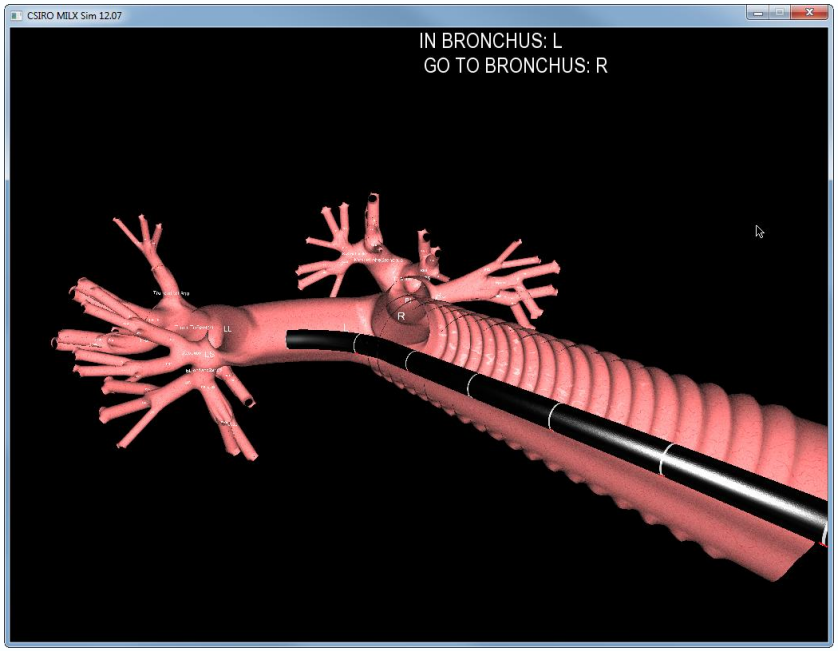


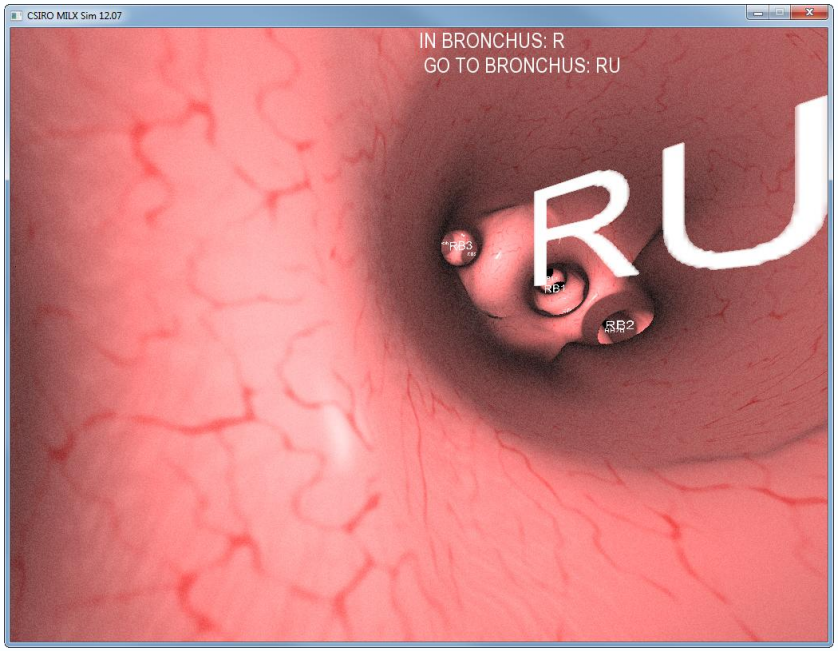
Interview



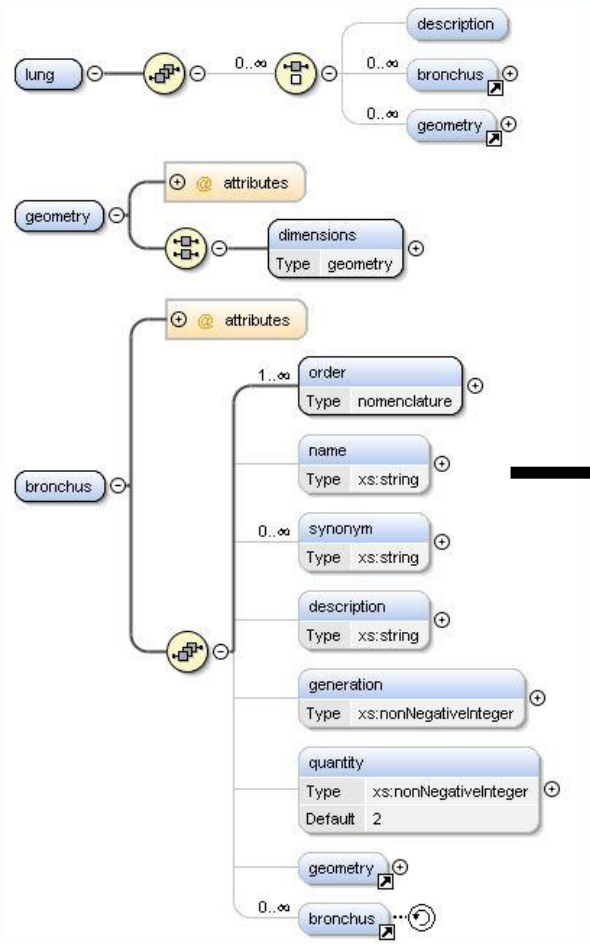
Example training applications

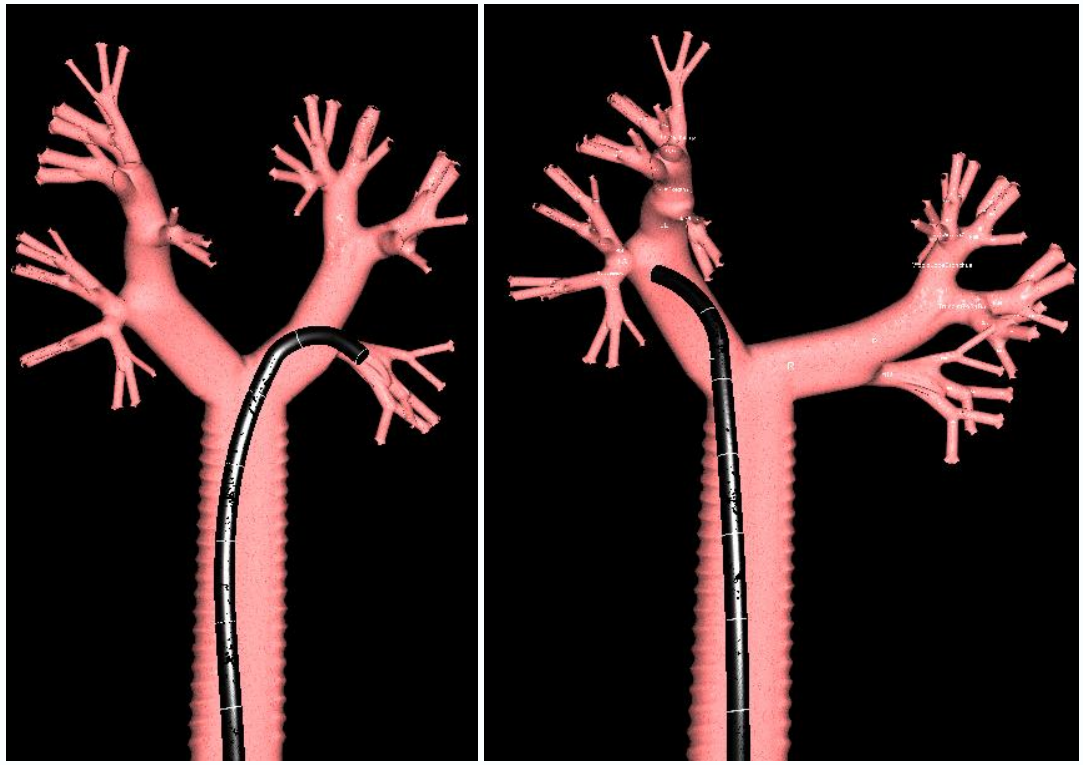
Full Procedure and Part Task Simulation



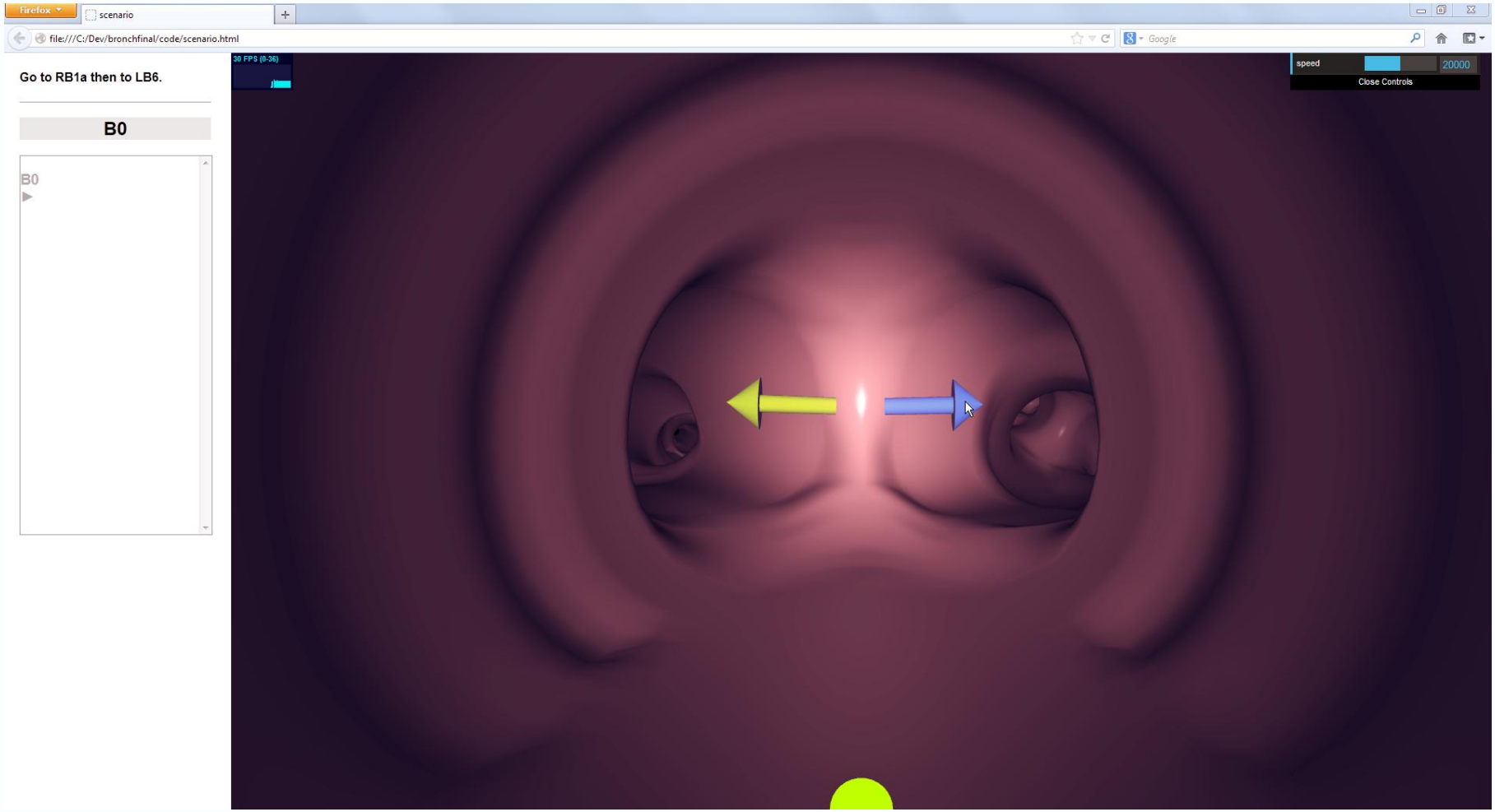


Flexible Data Representation





Part Task Training:
Bronchi Navigation and Nomenclature



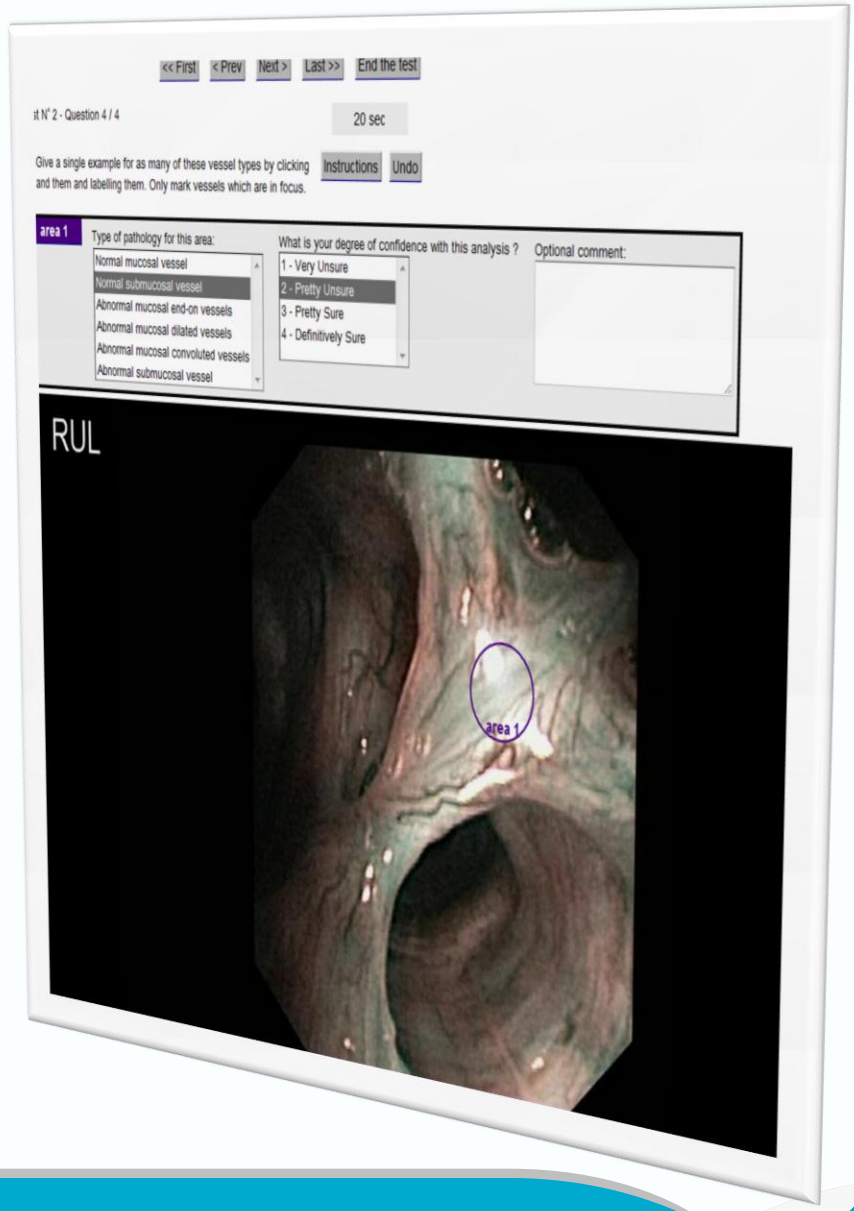
Part Task Training:
Narrow Band Imaging

Lifelong learning

Knowledge evaluation

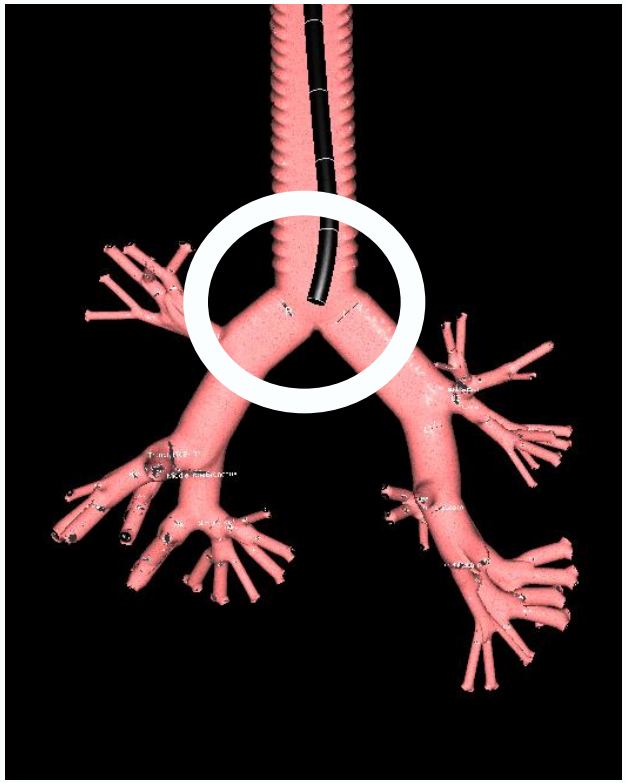
- Test NBI knowledge
- Online image labeling tool
- Identify biopsy sites
- Expert answer comparison
- Scoring

- Complements Image atlases



Posture

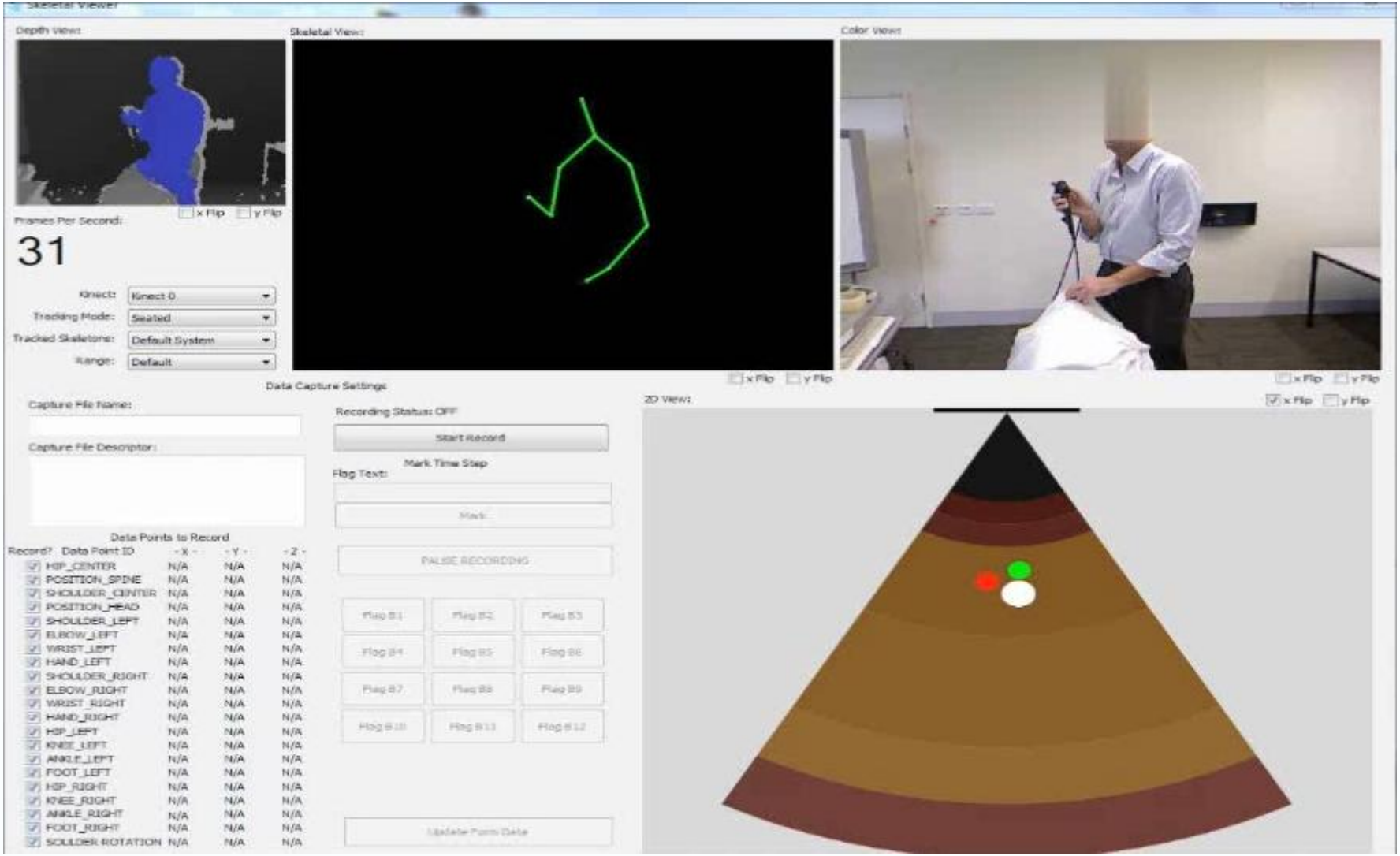
Evaluation of the bronchoscope camera / tip



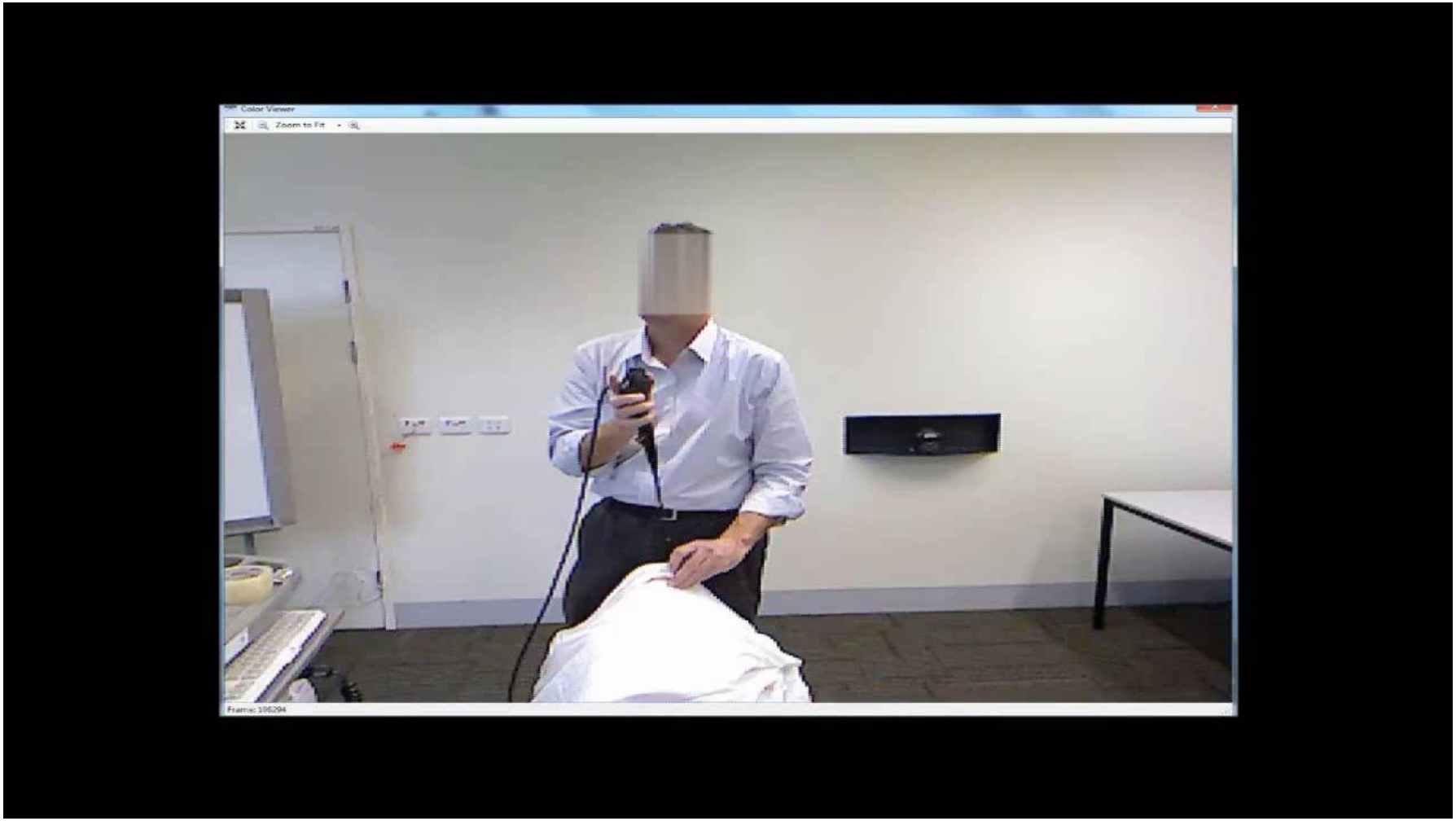
Video - Mannequin task analysis

3D Tracking

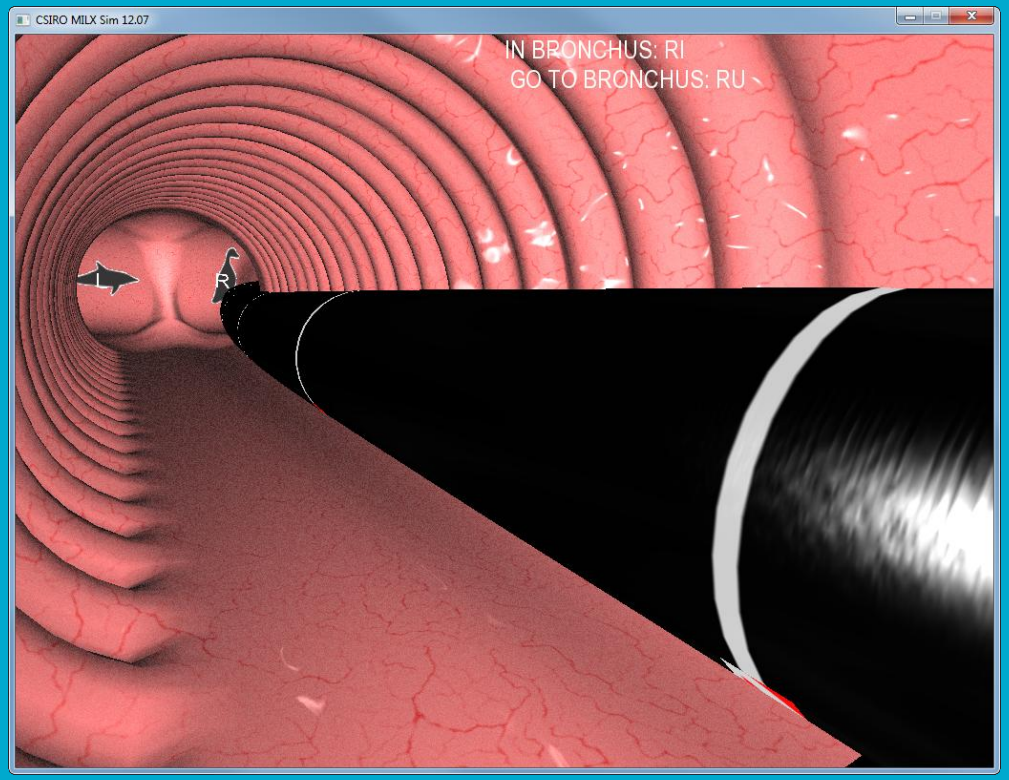
Video – 3D task analysis



Task analysis tools



Example posture usage



Thanks to our partners:

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