SPARS
Sequential Pattern Analysis in Robotic Surgery: Understanding Surgery

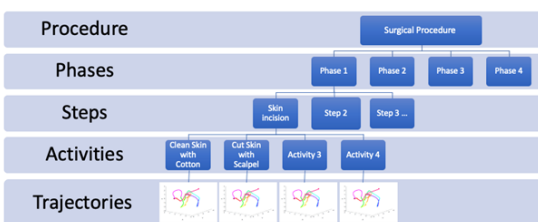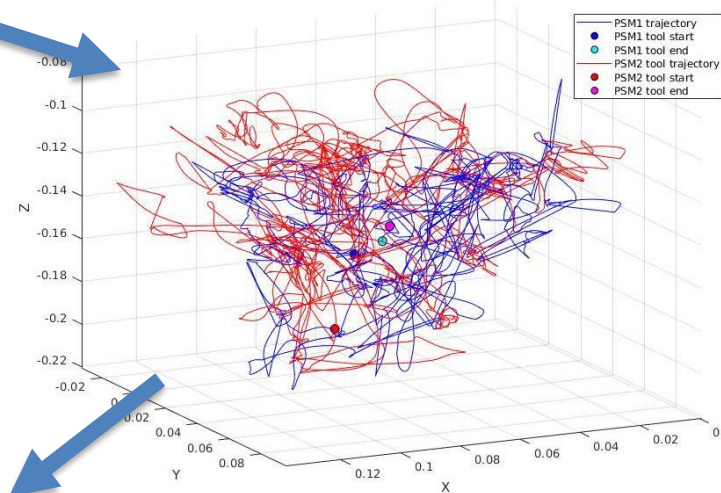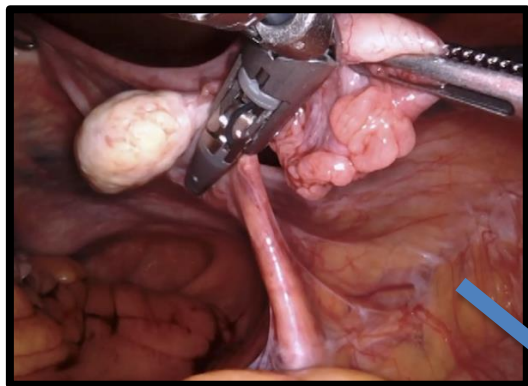MediCIS LTSI, Inserm/UR1

LinkMedia, Expression,IRISA/Inria

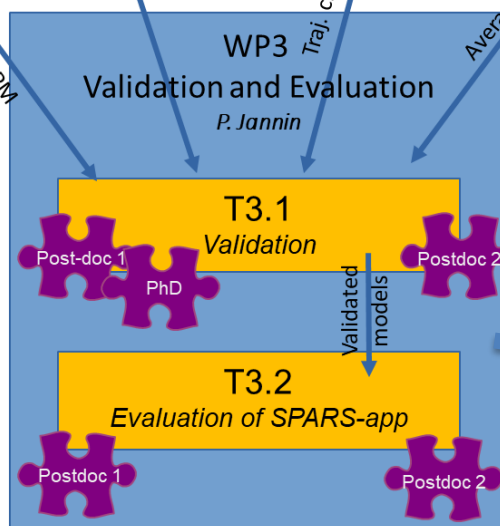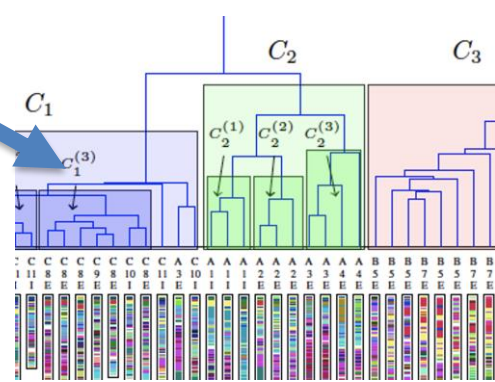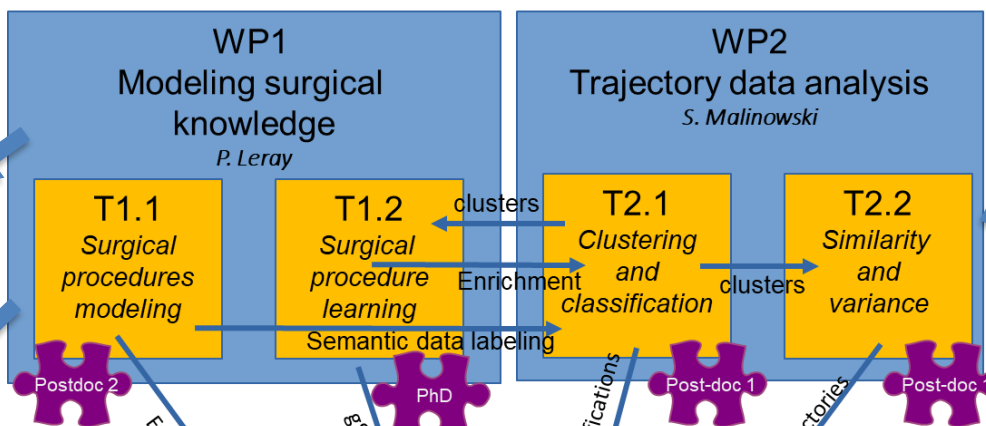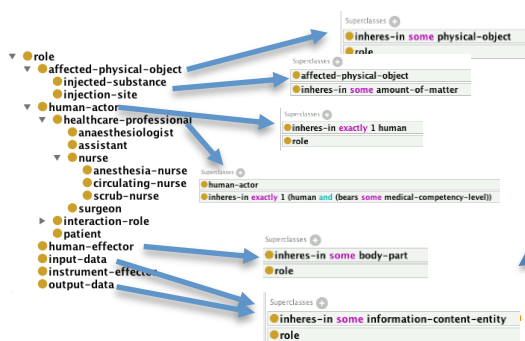Université Bretagne Sud

DUKE, LS2N, University Nantes/CNRS/IMT

CHU Rennes

Master – Slave Robotic Surgery

Video + Kinematics

Annotated surgeries + OntoSPM + expertise

Trajectories data

Procedure — Surgical Procedure

Phases — Phase 1, Phase 2, Phase 3, Phase 4

Steps — Skin incision, Step 2, Step 3 ...

Activities — Clean Skin with Cotton, Cut Skin with Scalpel, Activity 3, Activity 4

Trajectories

WP1
Modeling surgical knowledge
P. Leray

T1.1
Surgical procedures modeling
Postdoc 2

T1.2
Surgical procedure learning
PhD

WP2
Trajectory data analysis
S. Malinowski

T2.1
Clustering and classification
Post-doc 1

T2.2
Similarity and variance
Post-doc 1

clusters

Enrichment

clusters

Semantic data labeling

WP3
Validation and Evaluation
P. Jannin

T3.1
Validation
Post-doc 1 — PhD — Postdoc 2

T3.2
Evaluation of SPARS-app
Postdoc 1 — Postdoc 2

Extended OntoSPM

gSPM

Traj. classifications

Average trajectories

Validated models

Trajectory of the right tool tip
Movement specific to novice