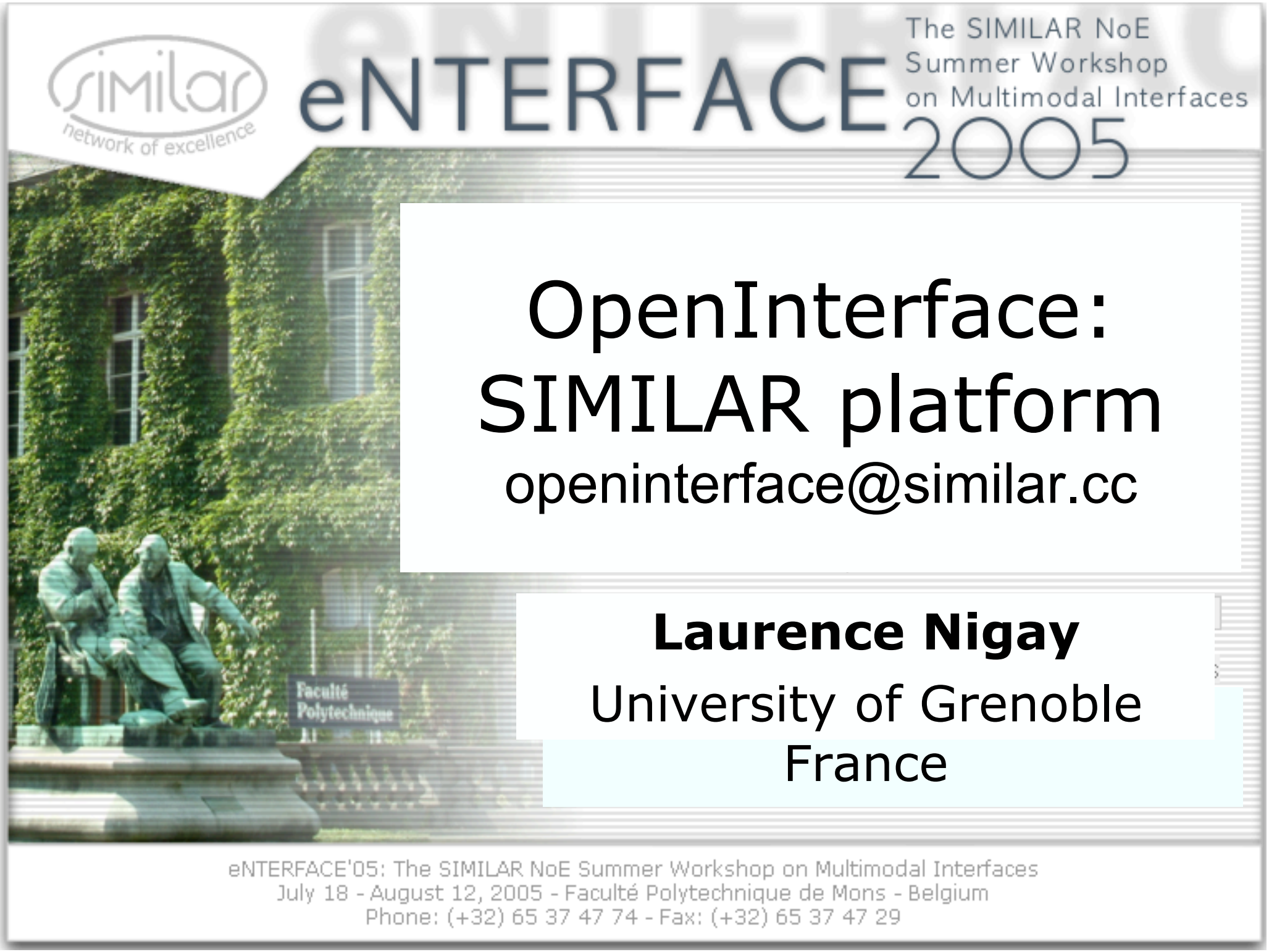

OpenInterface: SIMILAR platform

openinterface@similar.cc

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Outline

- OpenInterface platform
  - Brief description
  - Software architecture of a system
- Links between the OpenInterface platform and the eNTERFACE projects
  - Reusable Components
  - Example: Project 4

OpenInterface Platform

- Software Platform
  - A software platform that includes heterogenous software components dedicated to multimodal interaction (HCI) and multimodal data fusion (Signal Processing)

OpenInterface Platform

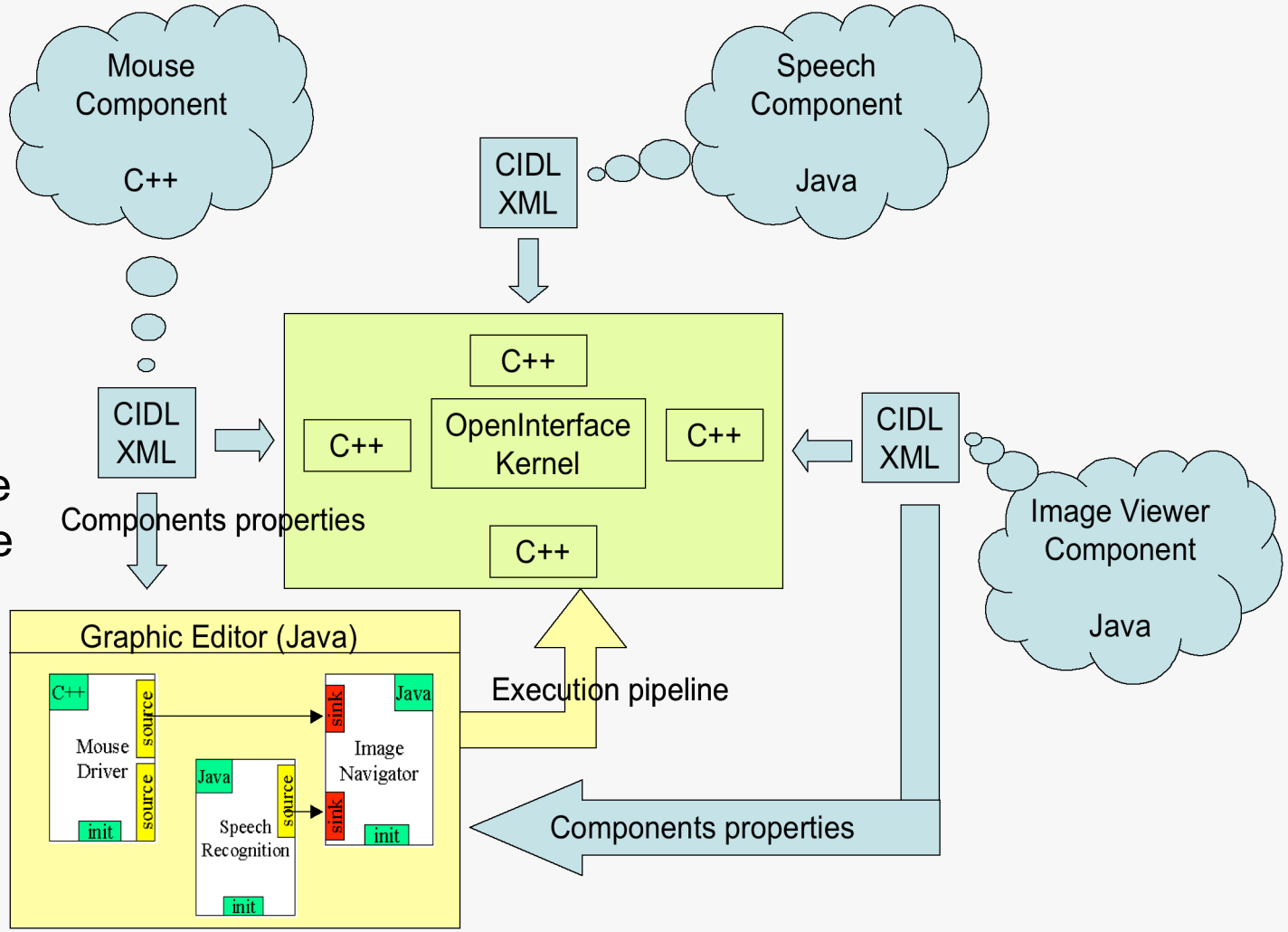
- Characteristics
  - Component-based approach
  - Heterogeneous native components
  - Easy integration of components
  - Connection between components to develop multimodal applications

OpenInterface Platform

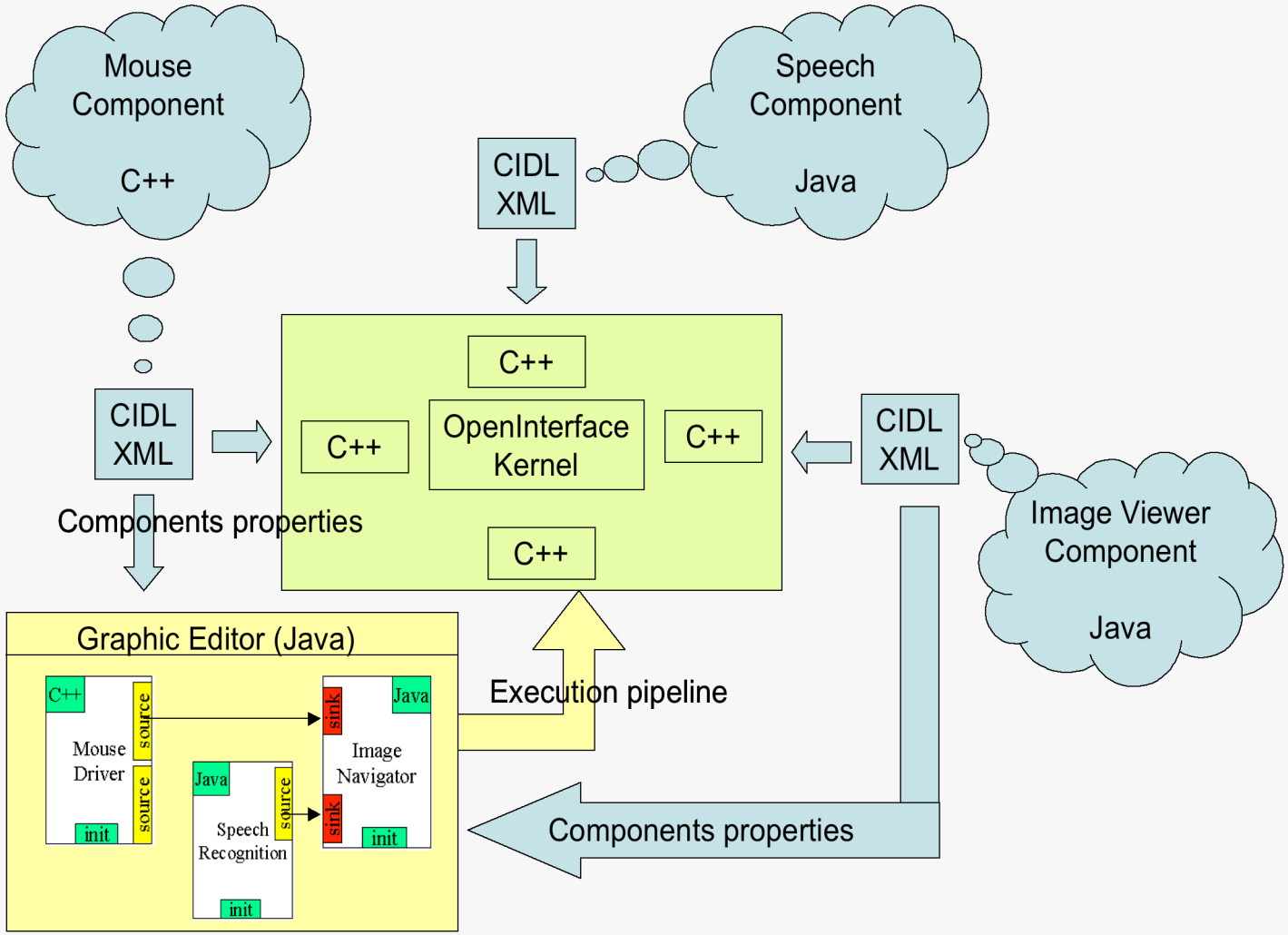
Step 1:

Adding components

Each component is registered into the OpenInterface Platform using the Component Interface Description Language (CIDL) and described in XML



OpenInterface Platform

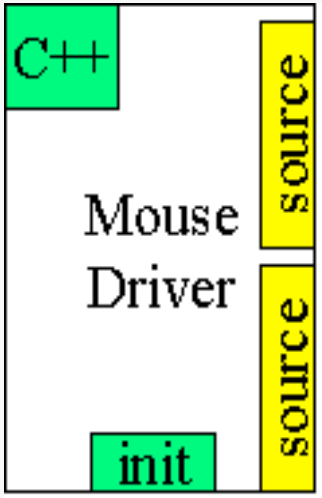


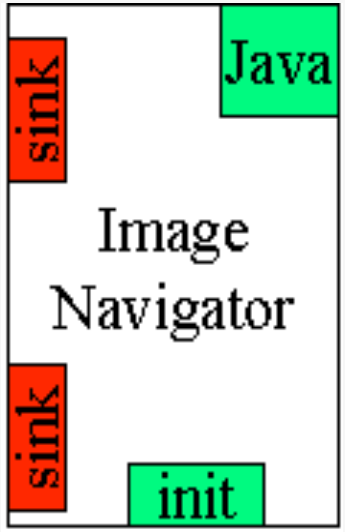
Step 2:

Developing a system

The registered components properties are retrieved by the Graphic Editor (Java)

OpenInterface components



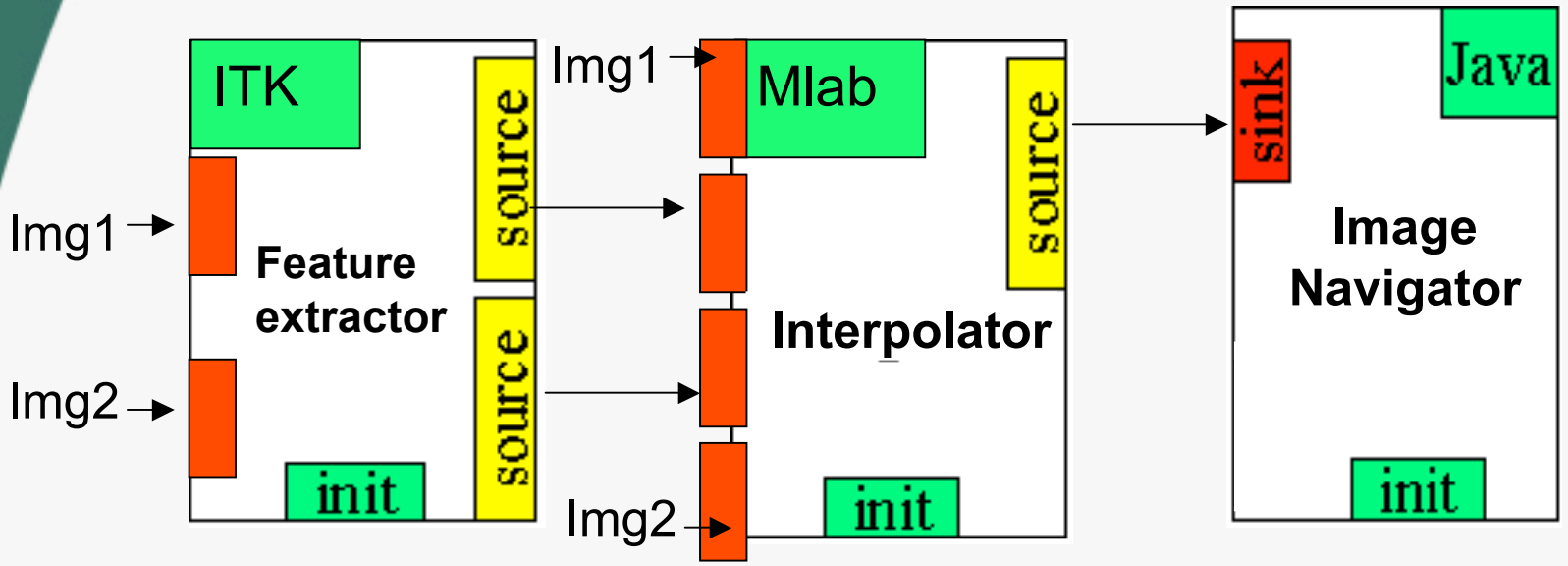


MouseDriver_Emul.h
MouseDriver_Emul.XML

SpeechRec.java
SpeechRec.xml

ImageViewer.java
ImageViewer.xml

Assembling OpenInterface components
Ex: Image coregistration



FeatureExtractor.cpp
FeatureExtractor.xml

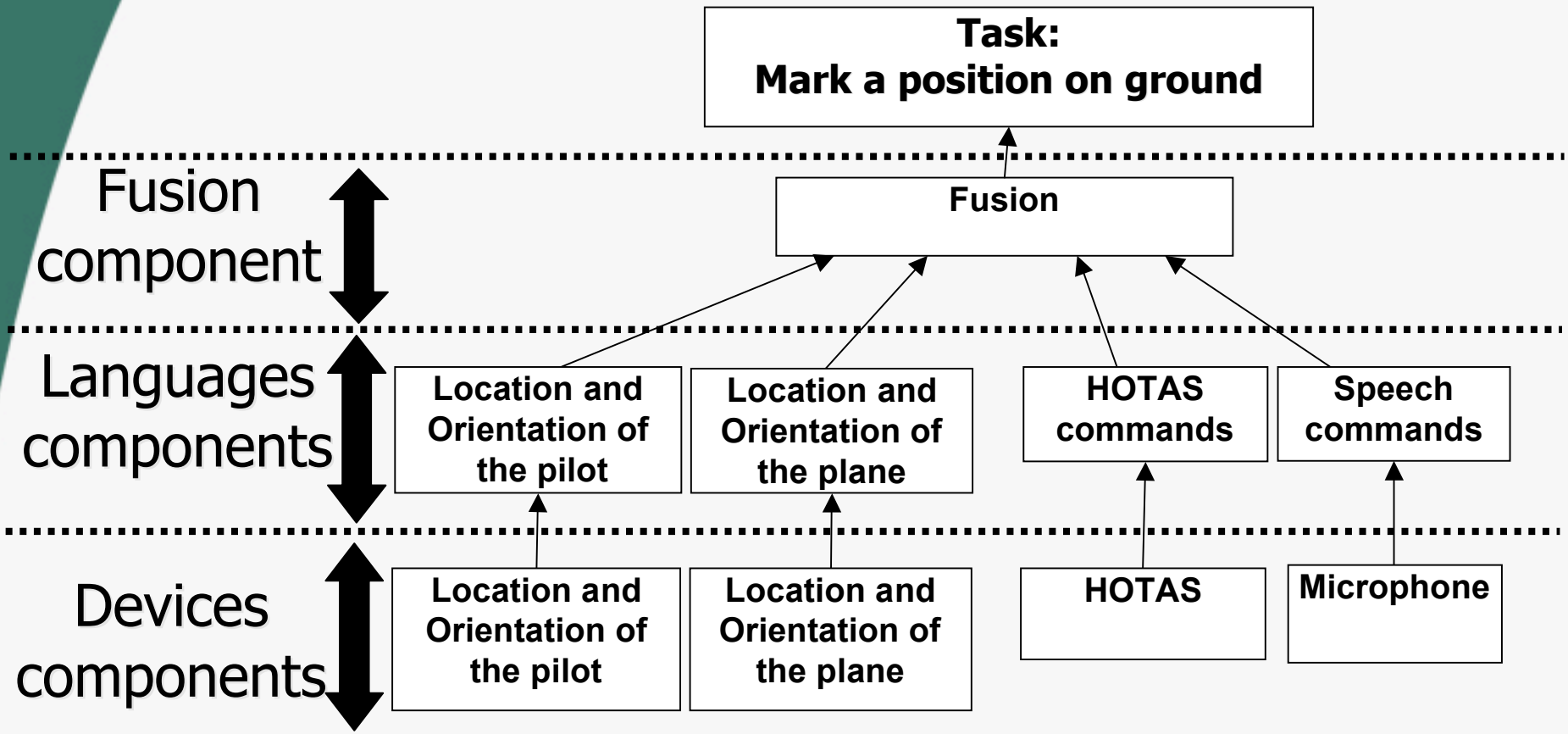
Interpolator.m
Interpolator.xml

ImageViewer.java
mageViewer.xml

Assembling OpenInterface components
Ex: Military aircraft

- French military project: University of Grenoble

Assembling OpenInterface components Ex: Military aircraft

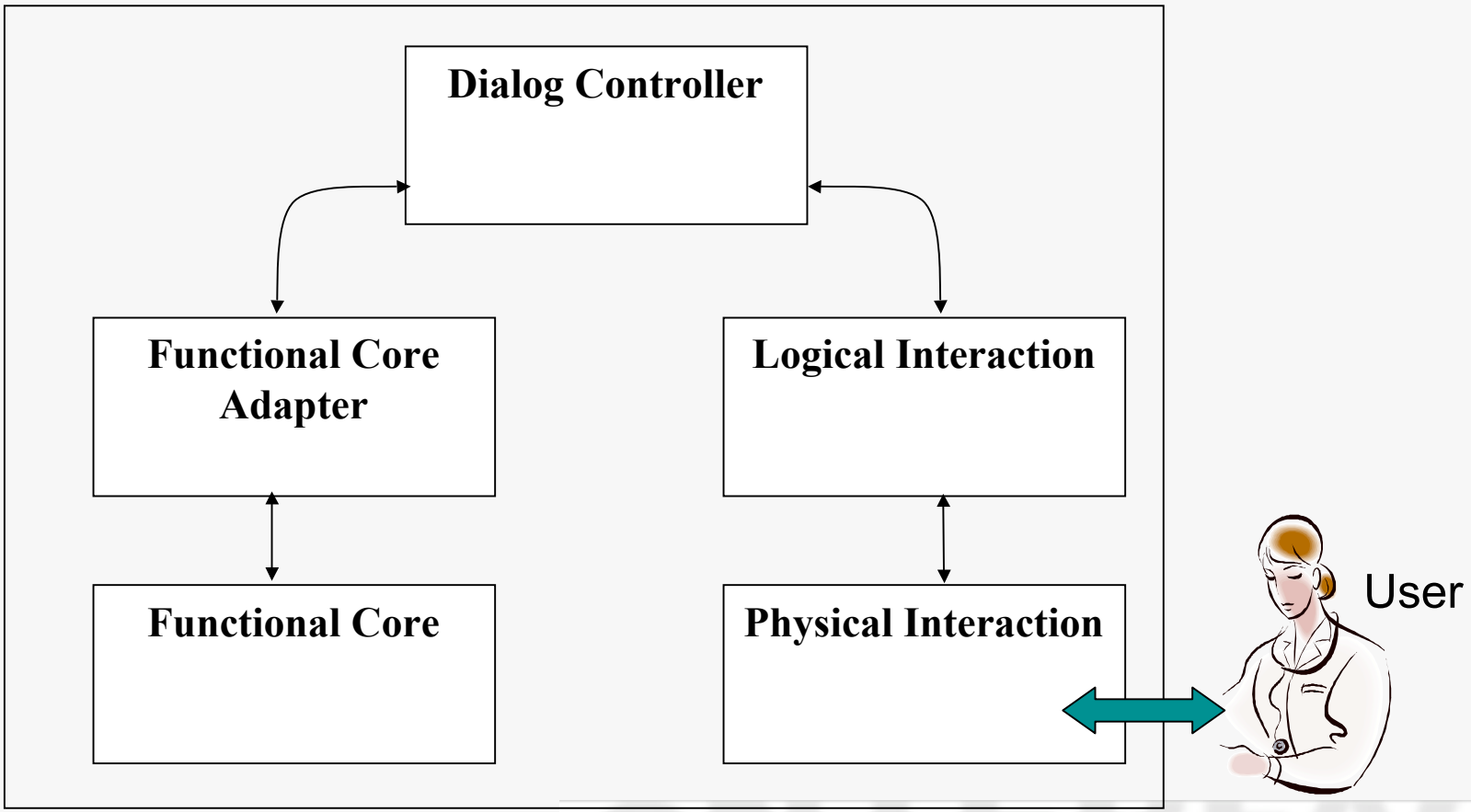


Assembling components:
Software architecture of a system

- ARCH architectural model
  - A software architecture is an organisation of computational elements + the description of the interactions between these elements

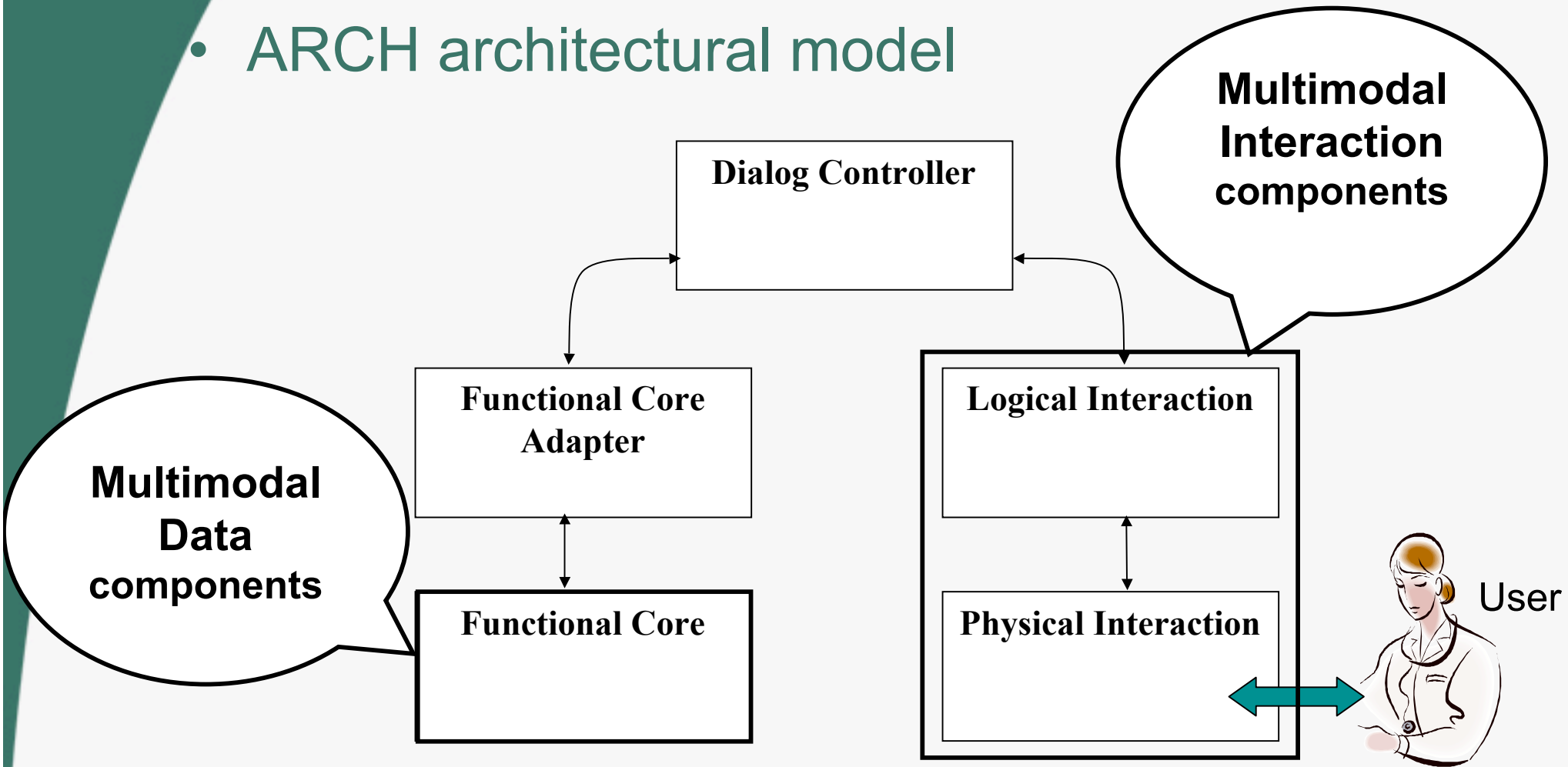
Assembling components:
Software architecture of a system

- ARCH architectural model

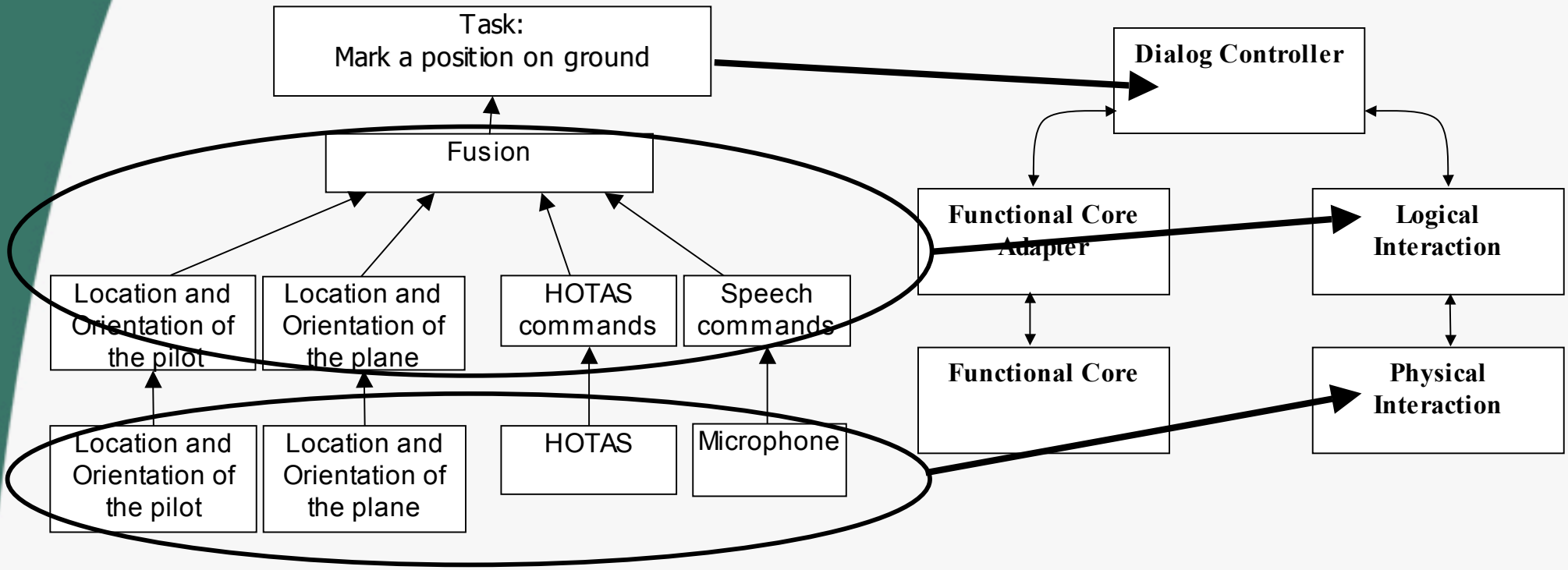


Assembling components:
Software architecture of a system

- ARCH architectural model

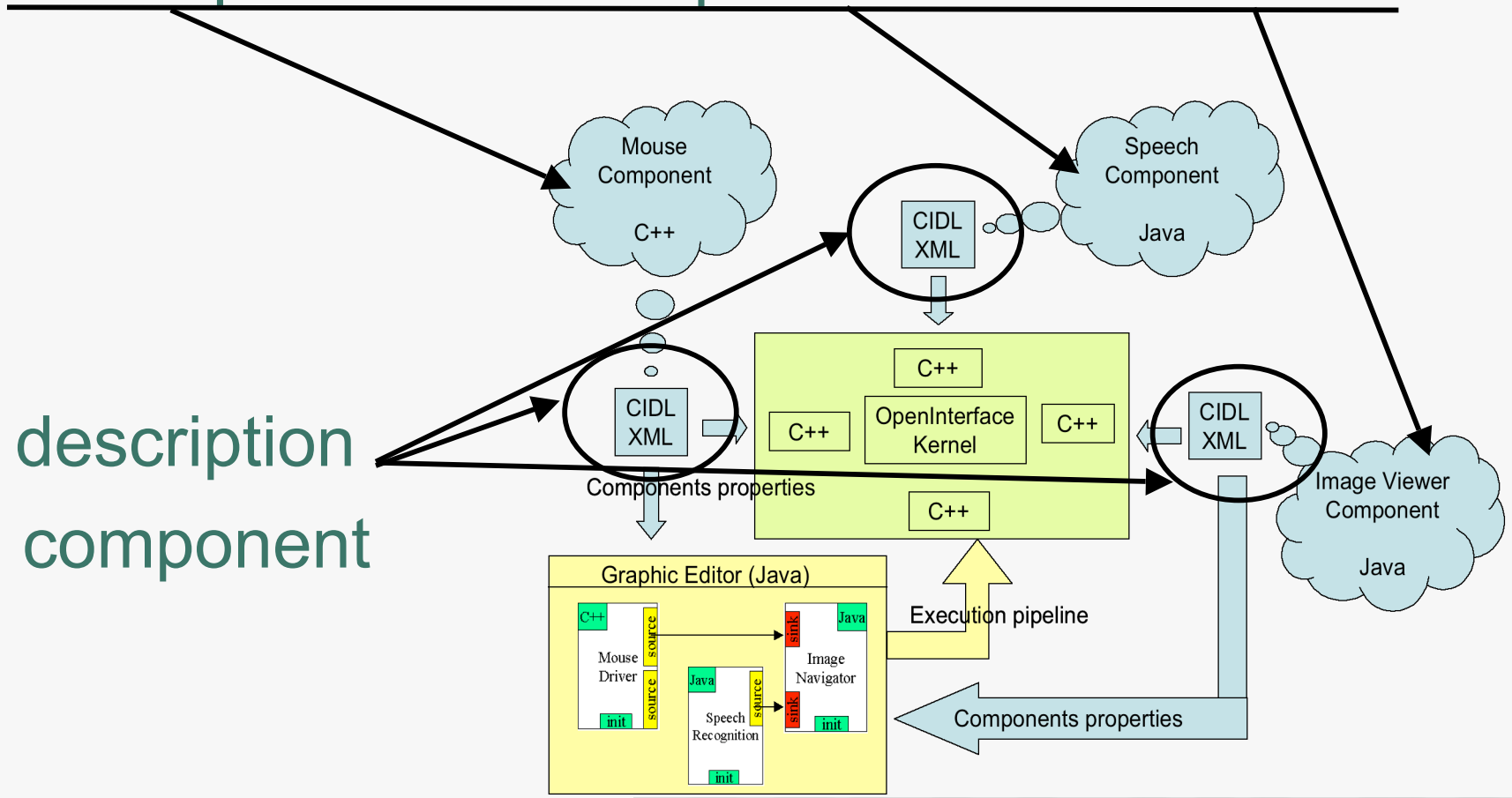


Assembling components:
Software architecture of a system



OpenInterface Platform and eNTERFACE projects

- Develop reusable components

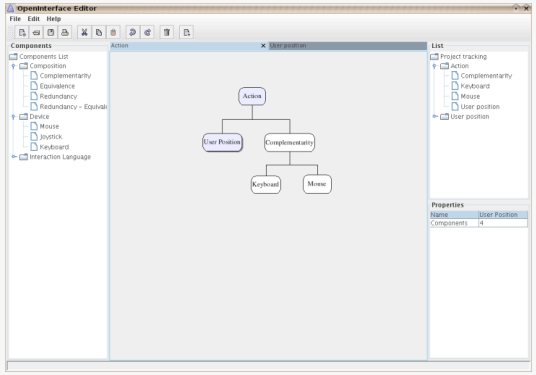


- XML description of the component

OpenInterface Platform and eNTERFACE projects

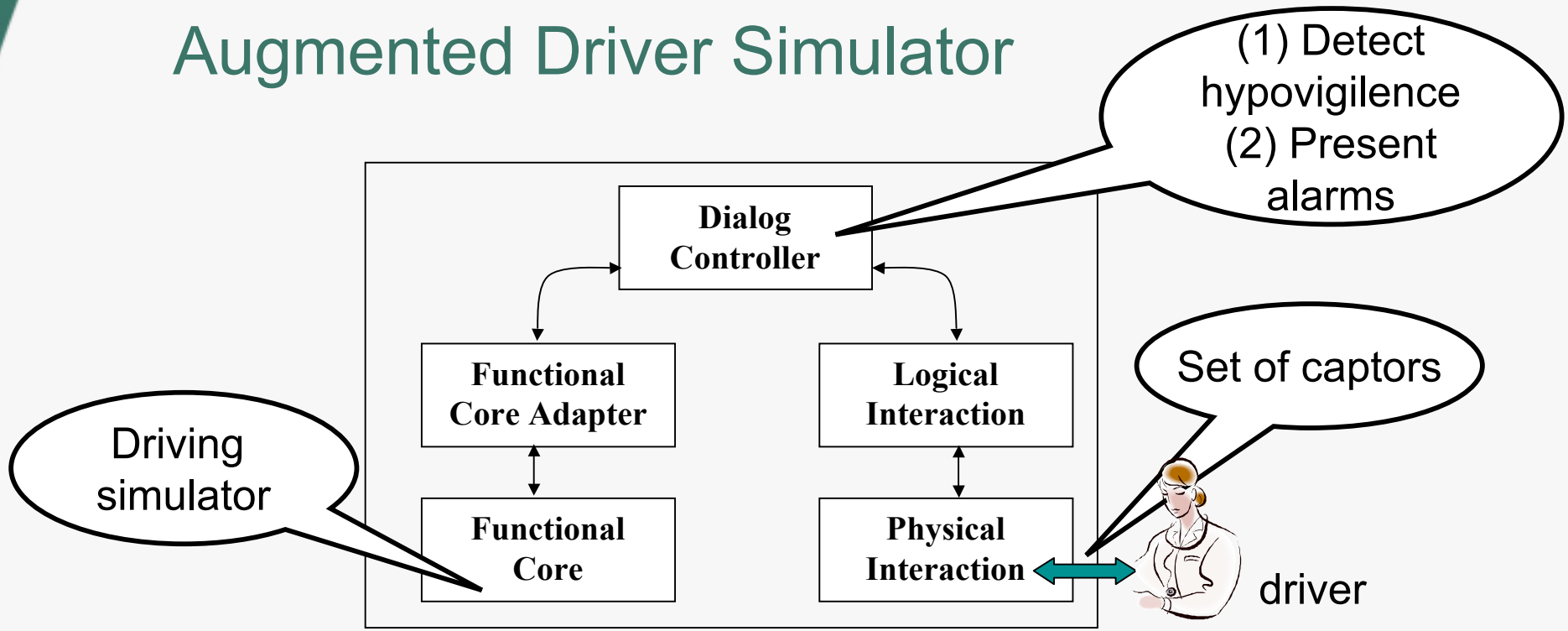
- For each eNTERFACE project:
  1. Design the software architecture
  2. Identify reusable components
  3. Develop the components
  4. Manually assemble the components for developing the complete system

  => Later we will create the OpenInterface components (XML description)

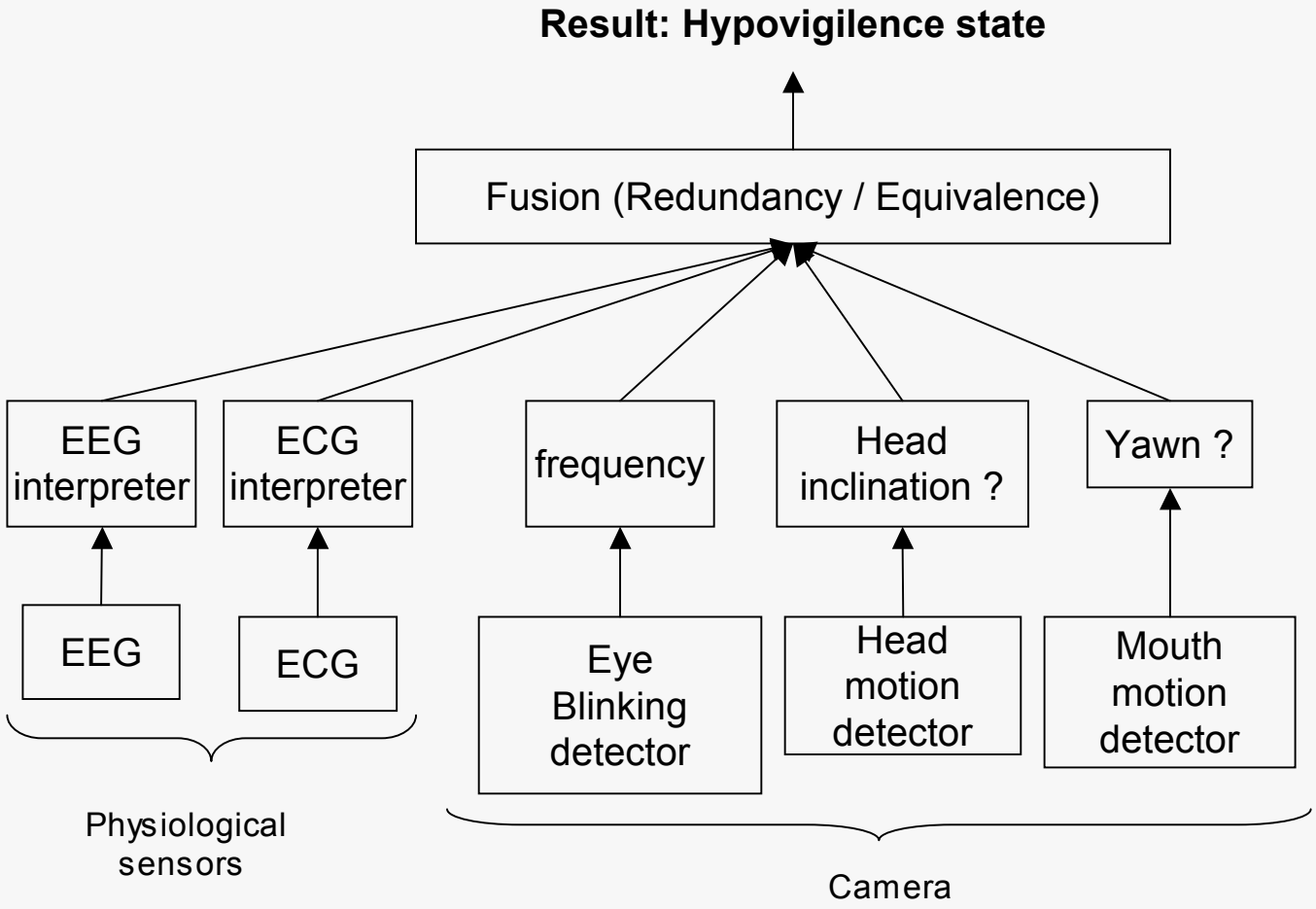


OpenInterface Platform and the eNTERFACE project 4

- Example Project 4
- Multimodal Focus Attention Detection in an Augmented Driver Simulator

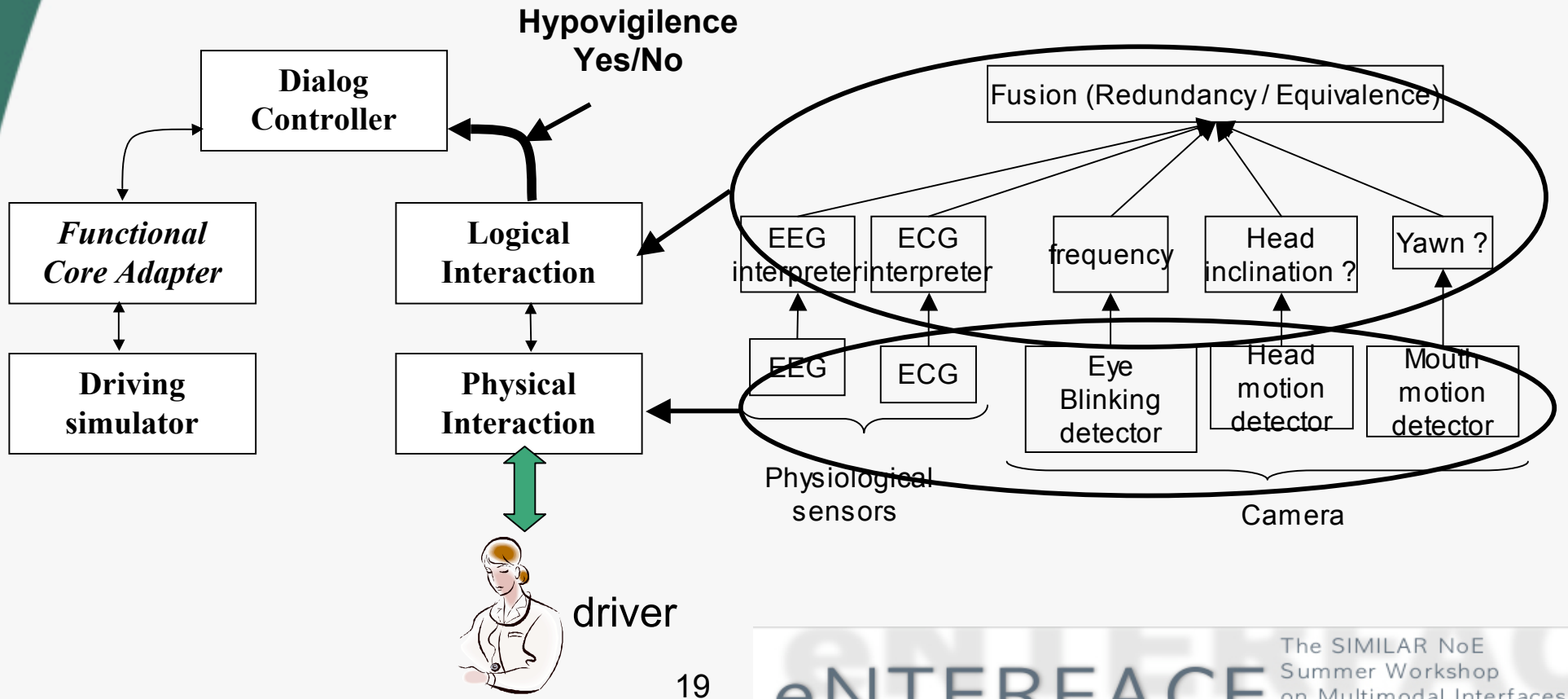


OpenInterface Platform and the eNTERFACE project 4

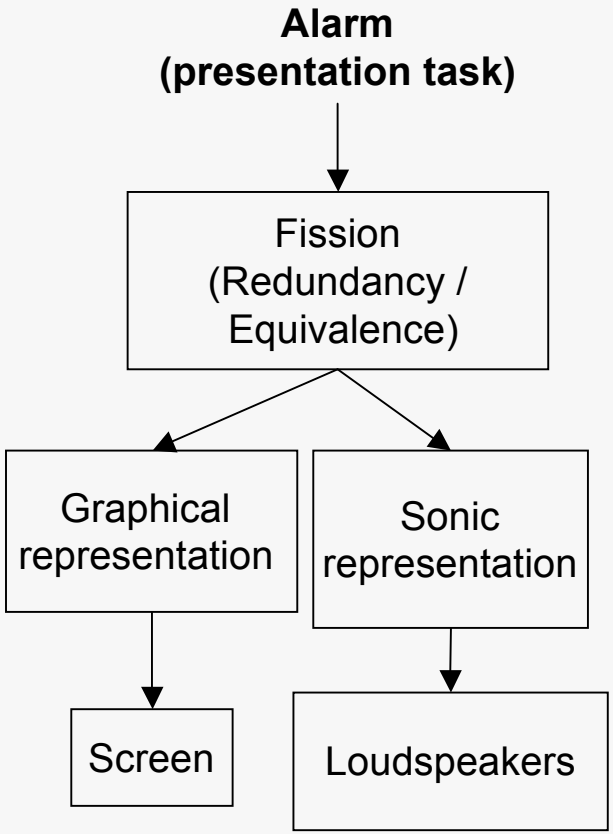


EEG: electroencephalogram
ECG: electrocardiogram

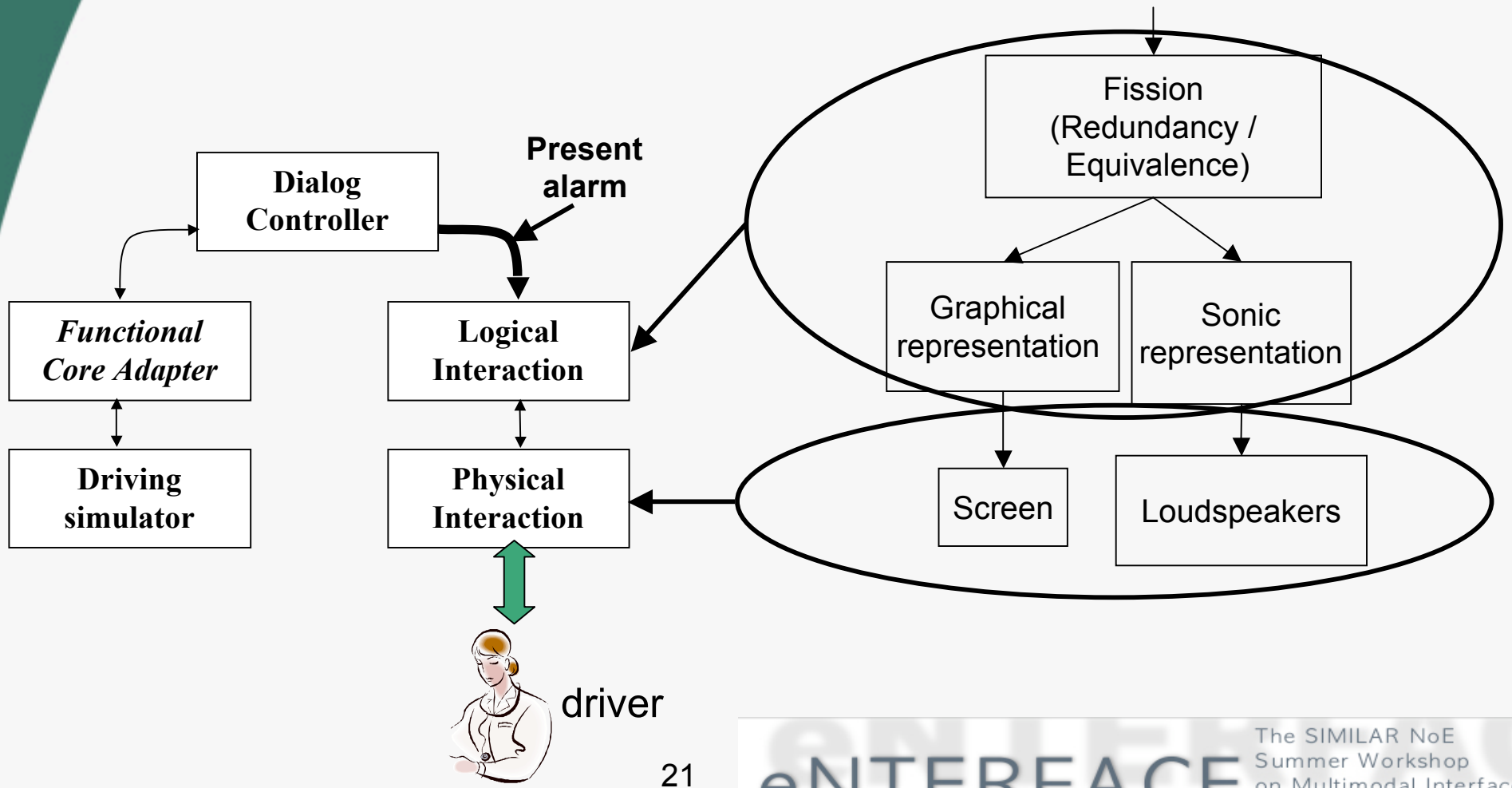
OpenInterface Platform and the eNTERFACE project 4

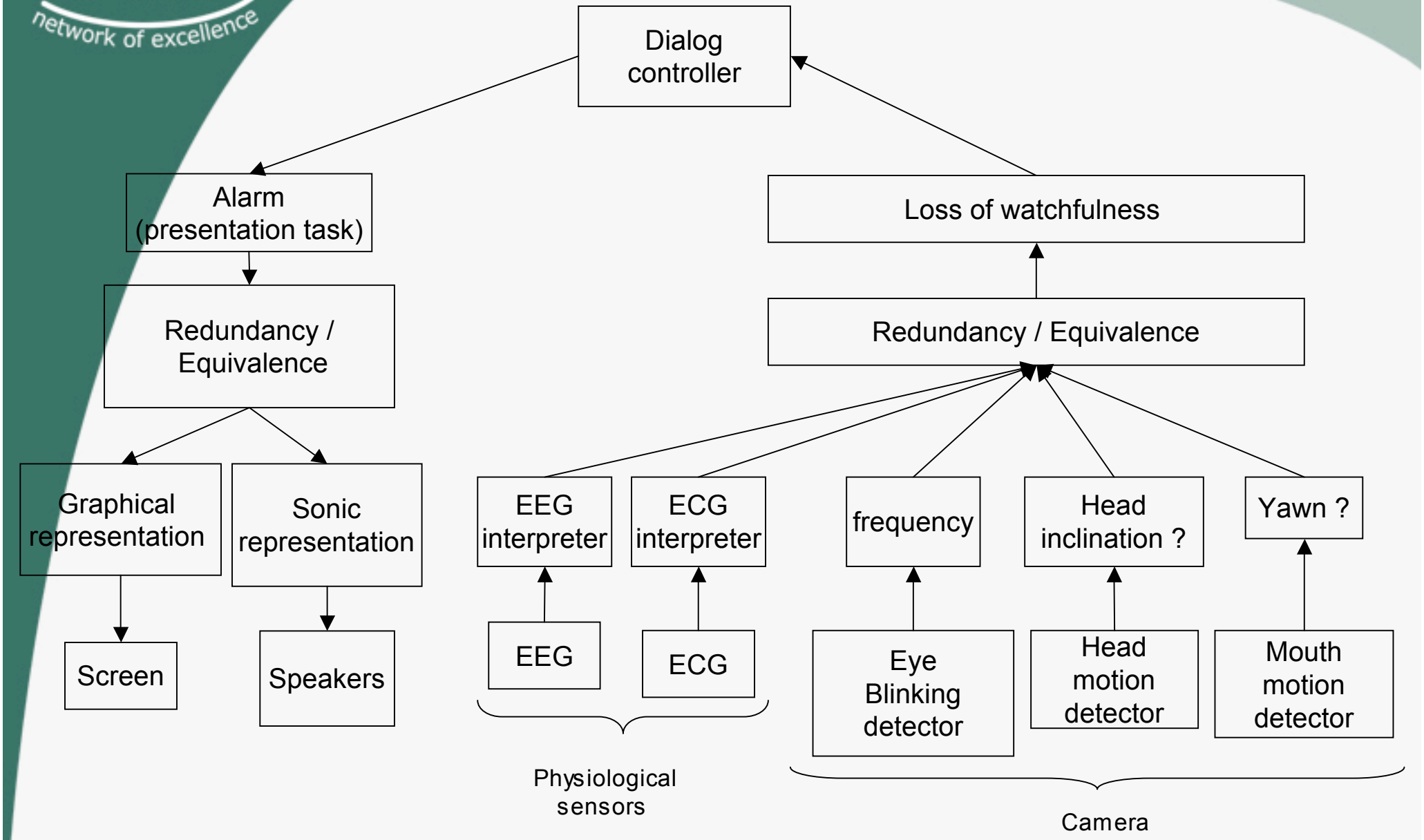


OpenInterface Platform and the eNTERFACE project 4



OpenInterface Platform and the eNTERFACE project 4





EEG: electroencephalogram
ECG: electrocardiogram

OpenInterface Platform and eNTERFACE projects

- Conclusion

- For each project
  - Design the software architecture (ARCH model)
  - Identify reusable components
  - Develop the components
  - Later we will create the corresponding OpenInterface components (XML description) and register them into the platform

- Tutorial by Lionel Lawson

OpenInterface platform

OpenInterface: SIMILAR platform

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