

Thematic	Ethique	Fablab	Initiation X	Interculturel	Recherche	Transitions
Short title	Infra-red sensing and imaging					
Title	This lecture will introduce the principles of infra-red sensing and imaging, including some demonstrations.					
Duration and number of students	1 day and a maximum of 30 students per day					
Where ?	SMH	Polytech	Viallet	Presqu'île X	Valence	
Activity accessible to the 8 schools ?	yes					
Pedagogic format	6 hours of lectures, including some live demos with infra-red cameras.					
Objectives	The aim of this lecture is to introduce the principles of infra red sensing, to present a number of applications where infra red sensing is used and to present how artificial intelligence can help leveraging the full potential of this technology.					
Content	<p>This lecture will be divided in the following sequence:</p> <p>1/ Introduction to infra-Red (IR) sensing technology, be it in the Short Wave Infra Red, the Long Wave Infra Red or the thermal domains.</p> <p>2/ Challenges and opportunities of IR sensing for a variety of applications (thermal efficiency of buildings, driving assistance, quality control...)</p> <p>3/ How can artificial intelligence help developing advanced algorithms to fully exploit the potential of this sensing technology ?</p> <p>4/ Connection with cognitive sciences in order to understand how a human observer can interpret IR images</p>					