



**UNIVERSIDADE FEDERAL DO ESPÍRITO SANTO
SECRETARIA DE RELAÇÕES INTERNACIONAIS**

**EDITAL Nº 09/2024/SRI/UFES PROCESSO SELETIVO PARA PARTICIPAÇÃO DE ESTUDANTES
DO CT UFES EM PROGRAMA DE MOBILIDADE ACADÊMICA INTERNACIONAL NA ESCOLA DE
ENGENHARIA ARTS ET MÉTIERS PARISTECH**

Atualização do Quadro 3 do Item 5 do edital

Quadro 3. Lista de Projetos de Pesquisa

Project title	Topic / Description
Integration of human factors into production systems	AI and posture identification in the service of decrease of MSD in production systems
Railroad	Topic 1: (continuation of rail transport resilience topic) risk analysis and residual potential of cross-border rail traffic after reorganization; Topic 2: transformation of a diesel locomotive into a battery locomotive; Topic 3 : architecture of an autonomous locomotive
AI in sustainable development	Sustainable and smart manufacturing has become a strategic focus as industries have begun exploring new ways to use resources efficiently, improve product quality, and reduce energy consumption. Integrating environmental considerations into every stage of product development in manufacturing industries plays a crucial role in reducing energy and resource consumption and improving quality. The efficiency in terms of quality, cost and reliability of the resulting products is ultimately influenced by the conditions in which they are designed and in the processes in which they are manufactured, and assembled. Sustainability is represented twofold: reduce of waste through reuse, repair and transform towards more sustainable technology systems/economy. The convergence of advanced technologies and new data analytics and AI models provide real-time feedback for smart manufacturing process control and adaptive product development, ultimately leading to improved manufacturing efficiency and reduced scrap rates by integrating principles of reusing and remanufacturing

	Required skills: mechanical engineering, computer science
Mechanics of Materials and Numerical Simulation	Potential application to biomechanical domain
D4US	The aim of the project is to evaluate the potential of ultrasound techniques and terahertz imaging for the detection of impact-induced damage to a glass fiber-reinforced polymer matrix composite material with woven architecture.
OPTIM_TPMS	Our objective for this year is to finalize and optimize the advanced digital design process for selecting the appropriate mesostructure and associated topology for medical implants obtained by metal additive manufacturing (SLM process).
D ² NL_PH	The aim of the present project is to set up a digital or hybrid twin based on non-intrusive digitizing techniques (machine learning, recursive neural networks) and separation of variables to translate the effects of microstructure parameters on the mechanical behavior of a woven reinforcement composite (twill). The aim of this project is therefore to predict, in reduced time, the macroscopic properties and nonlinear behavior of a material based on its microstructure parameters.