

RESEARCH INTERNSHIP - ENGINEER / MASTER

Academic year 2024-2025

INTERNSHIP PROPOSAL

Title	Analysis of the carbon footprint in the building and construction sector using GIS
Description and Objectives	<p>Description: The carbon footprint is the sum of greenhouse gases, in particular carbon dioxide and methane, that result from our activities. The building and construction sector is the greatest source of greenhouse gases. This sector is responsible for 37% of global emissions. The materials produced and used, such as cement, steel, and aluminum, have a significant carbon footprint. The aim here is to create a GIS map to monitor the construction sector's carbon footprint in France. This will help us to prepare the basis for a greener, more sustainable environment, in line with our climate policy objectives.</p> <p>Objectives of the internship: This internship aims to use GIS to analyze the carbon footprint and the results of its reduction. The Geographic Information System allows the exploration of spatial patterns and relations of carbon emissions and their sources. This helps us to identify the areas and sectors with the greatest reduction potential. The first step in using GIS for carbon reduction is to measure and track historical and actual carbon emissions in the relevant area. GIS makes it possible to obtain and integrate data from different sources, such as satellite imagery, remote sensing, ground sensors, and surveys. It is also useful for identifying opportunities to reduce carbon emissions, and for developing and implementing carbon reduction plans.</p> <p>Missions:</p> <ul style="list-style-type: none"> • Research into the carbon footprint of the construction sector • Development of a GIS model for carbon footprint analysis and identification of carbon emission reduction opportunities <p>Profile: Level: Master 2 or last year of engineering school Specialty: Geomatics, Geoinformatics, Environmental Engineering, Civil Engineering, Urban Engineering</p>
Required Skills	Computer programming, Geomatics (knowledge of Python, C++, BIM, GIS: QGIS, ArcGIS pro)
supervisors	Mojtaba ESLAHI : meslahi@estp.fr Rani EL MEOUCHE : relmeouche@estp.fr
Laboratory	IR – ESTP, laboratory of Cachan campus, 28 avenue du Président Wilson, 94230 Cachan
Duration	6 month
Gratification	800 euros net (Reimbursement of 65% of transport costs; luncheon vouchers)