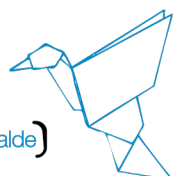


Internship in Design and Implementation of a Real-Time Visualization System for Pedestrian Dynamics in Urban Environments

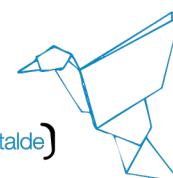
Job Offer	
Topics:	The Basque Center for Applied Mathematics is offering an internship position within the CFD-MS group. The selected candidate will work on the DigiCasco project, which aims to develop software for simulating pedestrian dynamics in the Old Town of Bilbao (Casco Viejo). This software will be used to analyze pedestrian mobility patterns in the Old Town of Bilbao, considering different types of agents (e.g., residents and tourists) with distinct motivations and navigation behaviors. A key aspect of the project is the visualization of pedestrian movement within the virtual three-dimensional environment where the simulated agents operate. The selected candidate will be responsible for developing a Unity-based platform that integrates the 3D model of Casco Viejo with pedestrian dynamics data (precomputed X-Y coordinates of agents), enabling the real-time visualization of pedestrian movement from multiple perspectives. Particular attention will be given to computational efficiency during data integration and to optimizing real-time 3D rendering performance. The platform should include an option to activate and deactivate layers showing postprocessed pedestrian flow data such as density fields. Additional tasks may include integrating other 3D geometries into the platform for pedestrian dynamics visualization. The tasks to be carried out will be: -Optimize the platform to enable real-time visualization -Implement pedestrian dynamics visualization from multiple perspectives -Enable the superposition layers with information (flow, density, ...) in the platform
PI in charge:	Marco Ellero and Bruno Valdemar Guerrero
Salary and conditions:	• Living in the Basque Country:



	- Graduate students: net salary of 300 € monthly - Master's degree students/ PhD students: net salary of 350 € monthly. • Living in Spain: -Graduate students: net salary of 500 € monthly + 150 € for travel expenses -Master's degree students/ PhD students: net salary of 600 € monthly + 150 € for travel expenses • -Living outside Spain: -No remuneration. -Accommodation and meals covered by BCAM* -Travel expenses are covered and to be reimbursed: - Up to 300 €, if the intern comes from the EU - Up to 1000 €, if the intern comes from outside of the EU (to be checked on each country)
Nº Positions offered:	1
Contract and offer:	4 months, with a possibility to extend it in another two months
Deadline:	31st August, 2026, 14:00 CET (UTC+1)
How to apply:	Applications must be submitted on-line at: https://joboffers.bcamath.org

Scientific Profile Requested	
Requirements:	• Degree in Physics, Mathematics, Computer Science, Engineering, or related field
Skills and track-record:	Although the requirements can be adapted to the different candidate profiles, a strong candidate needs to possess the following skills: • Background in computer science. • Strong programming skills in C and Python. • Familiarity with Unity or similar 3D engines. • Knowledge of computer graphics and real-time visualization techniques.

Application and Selection Process



Formal Requirements:	The selected candidate must have applied before the application deadline online at the webpage: https://joboffers.bcamath.org The candidates that do not fulfil the mandatory requirements will not be evaluated with respect to their scientific profile.
Application:	Required documents: • CV • Letter of interest in English describing which topics the candidate is interested in researching. • 2 recommendation letters • Academic record: including undergraduate and master-level courses attended and grades and scientific results achieved, and research statement is NOT required (leave blank in application form).
Evaluation:	Based on the provided application documents of each candidate, the evaluation committee will evaluate qualitatively: the adaption of the previous training and career to the profile offered, the recommendation letters, the main results achieved (papers, proceedings, etc.), the statement of past and proposed future research and other merits; taking in account the alignment of these items to the topic offered.
Incorporation:	As soon as possible



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