



# Position and Personalize Advanced Human Body Models for Injury Prediction

## Project motivation

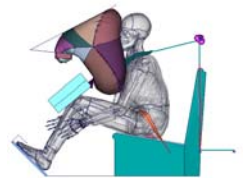
In passive safety, **advanced Human Body Models (HBM) for injury prediction** based on the Finite Elements method have the potential to represent the population variability and to provide more accurate injury predictions than alternatives using global injury criteria. However, these advanced HBM are underutilized in industrial R&D. Reasons include difficulties to position the models – which are typically only available in one posture – in actual vehicle environments, and the lack of possibility to represent the population variability (size, weight, *etc.*).

## Objectives

The main objective of the PIPER project is to **develop “user friendly” new tools to position and personalize these advanced HBM**. By facilitating the generation of population and subject-specific HBM and their usage in production environments, the tools will enable new applications in industrial R&D for the design of restraint systems as well as new research applications.

## Main steps

- Evaluation of the personalizing and positioning tools in actual applications including adult and child biomechanics. Improvement of child human models and accident reconstruction environments; definition of guidelines for future use (WP1)
- Development of predictors of posture and shape to help drive the personalisation and positioning tools based on imaging and postural data (WP2).
- Development of a modular framework to position and personalize human body models (WP3)
- Dissemination of results, facilitation of test by potential user (WP4)



## Key points and deliverables

The tools developed within the project will be shared with the community using an Open Source License. It will ensure easy access and allow future evolutions and contributions from the community. The tools aim to be model neutral.

Predictors of posture and shape will be based on statistical databases (*e.g.* geometrical) that will be released under a similar license. You are welcome to contact us if you think you have data that could be useful for these databases.

A poll will be organized to help understand the needs and priorities of the community.

## Key figures

**4** M€ Budget  
**3** M€ EC Funding  
**42** months, from  
1<sup>st</sup> Nov. 2013

## Participants



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