

State of the art research in reactive human models for passive and active automotive safety : A review and perspective



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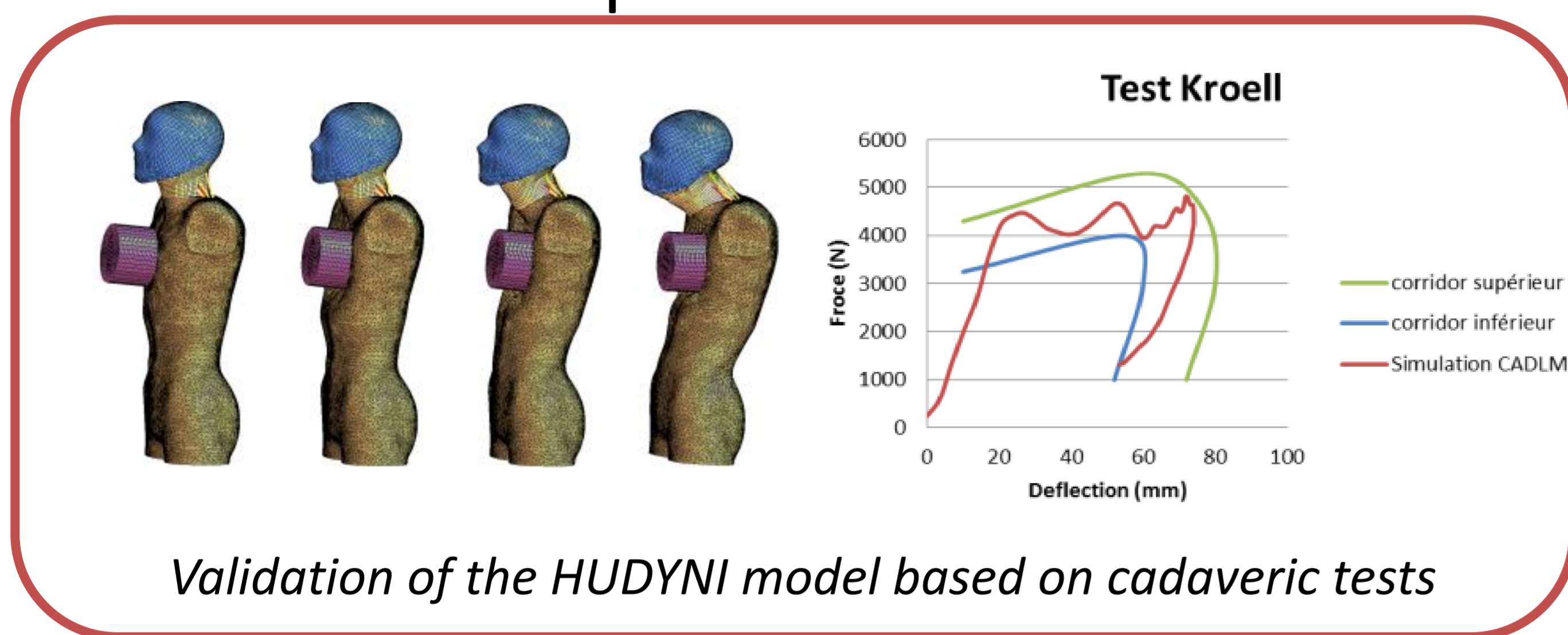


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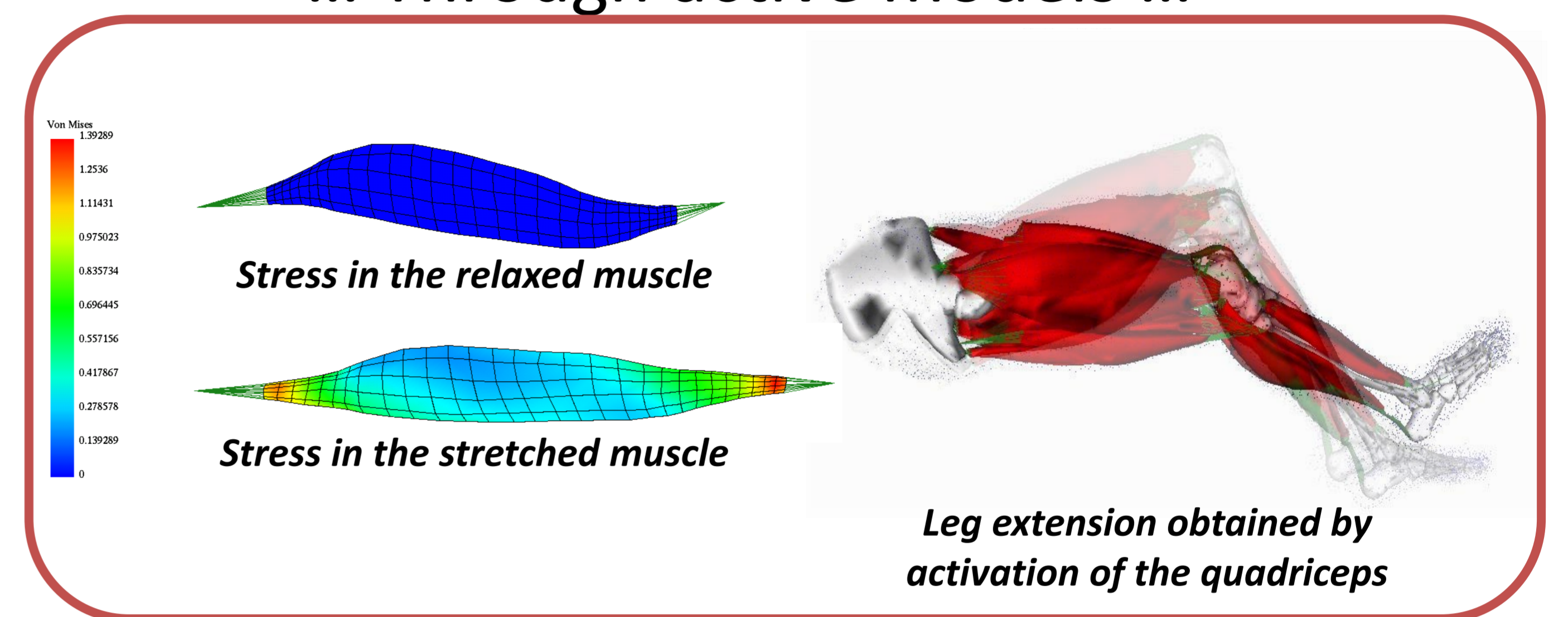
Introduction

Passive safety systems (airbags, seatbelts...) and active safety systems (Automatic brake, ABS...) are nowadays massively presents in our cars. Active safety systems have been known to influence passive safety systems efficiency in good ways (reduction of impact severity) but also in bad ways (generation of Out of Positions (OoP)). For a few years from now, biomechanical human models, passive or active, are used to investigate automotive safety but with the increasing number of active safety systems a new generation of model is necessary : the reactive models.

From passive models ...



... Through active models ...



... To reactive models

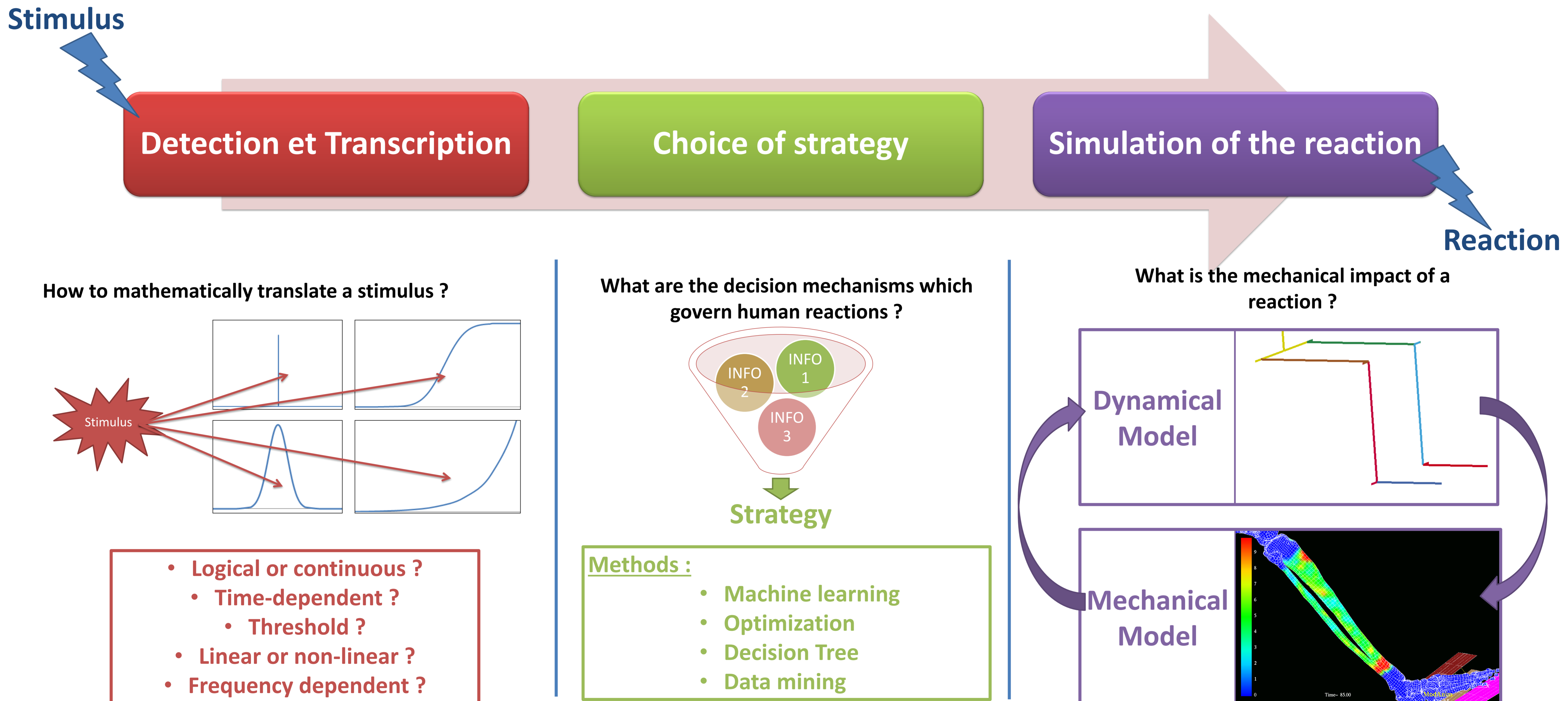
How to make these models « reactive » ?

Solution :

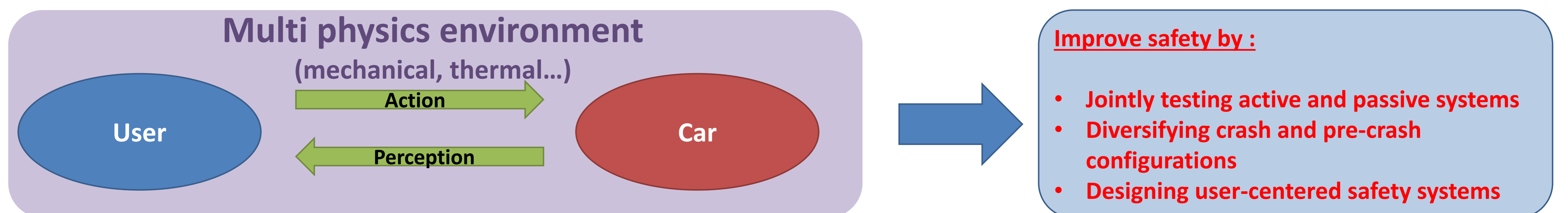
Bring together Neurosciences and Biomechanics, in a unique model.

Research program

A reactive model is currently under development. This model is called HUDYNI ("Human model for DYNamic applications with Intelligence") and will be based on the following research. At first, the research will be focusing on the upper limb and then the method will be extended to the full body.



Research benefits



Other application domains: medicine, sport, aeronautics, defence, computer animation...

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