

"Småfolk" – Rear Seat Safety



Transportation



Potential
evasive
event



Crash



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VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS



Child safety = Real children in cars



Leaning forward for visibility, communication or activities



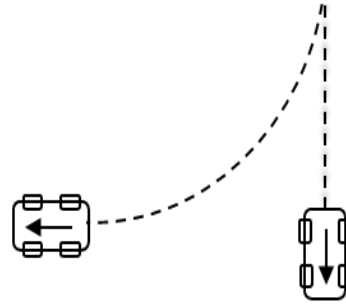
Slouching for comfort



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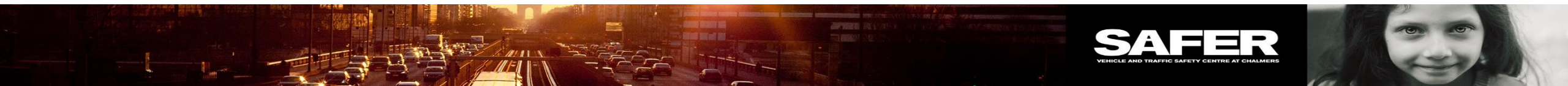


What happens during an evasive event?

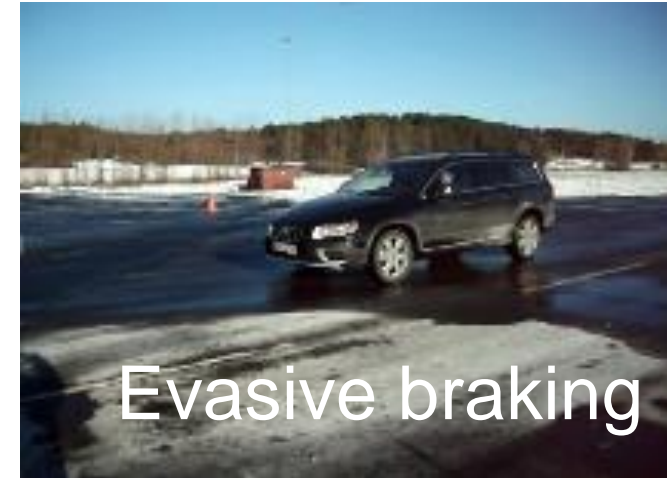
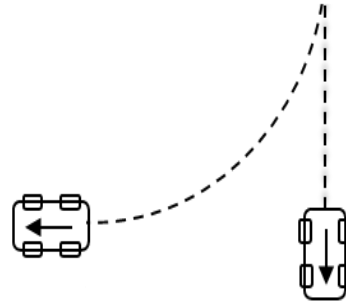


Evasive steering

Evasive braking



What happens during an evasive event?



A seat back might keep the shoulder belt on the shoulder during an evasive event – but is that enough during a crash?

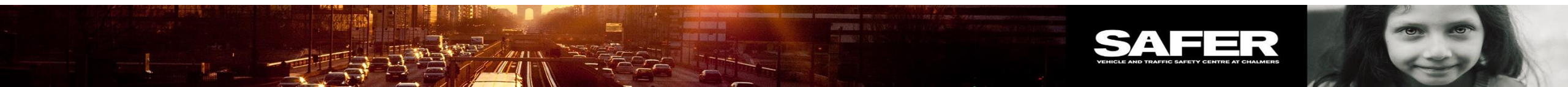
Evasive steering



Booster cushion



Booster seat

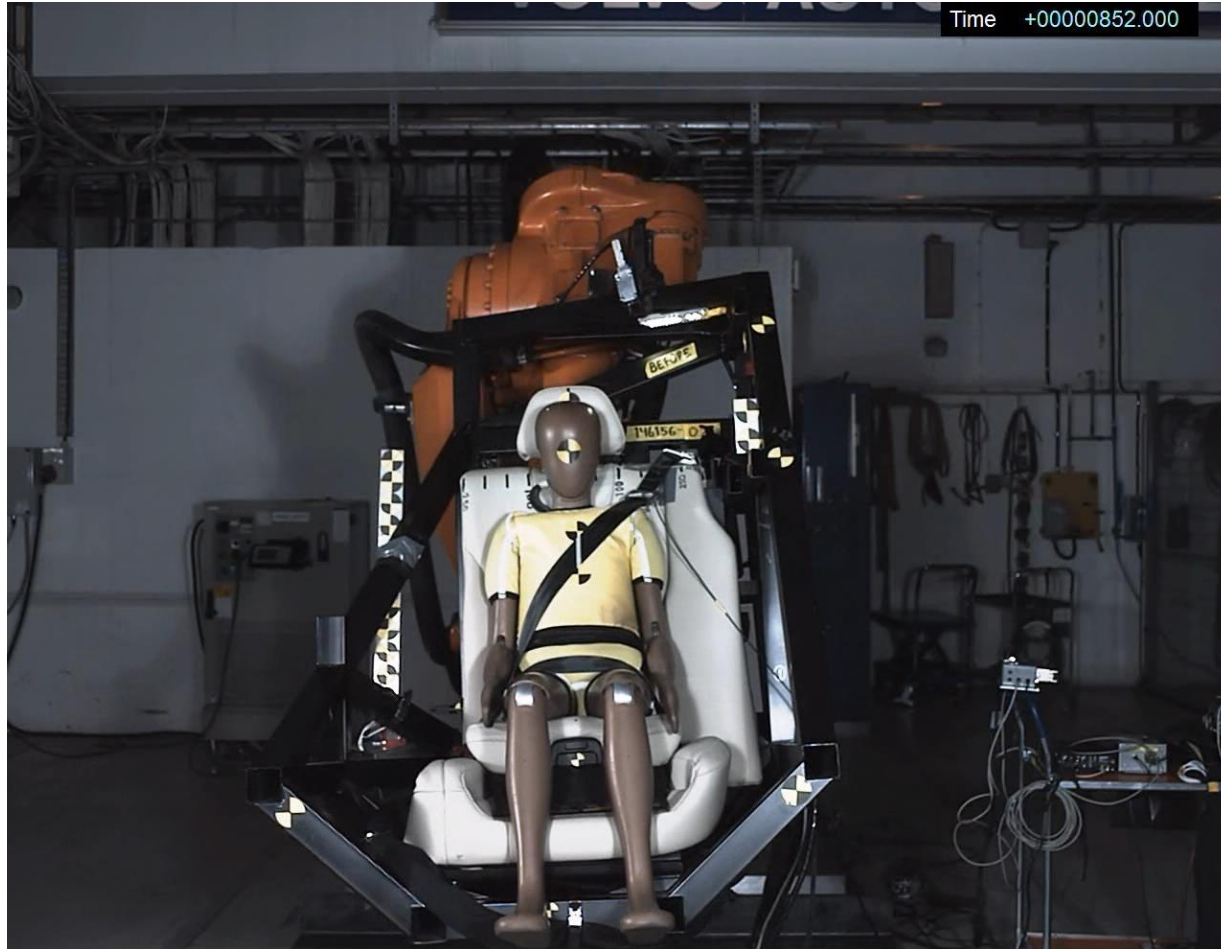


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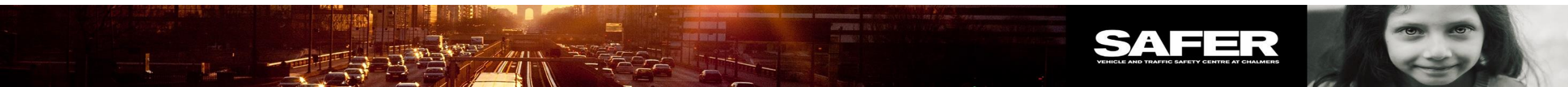
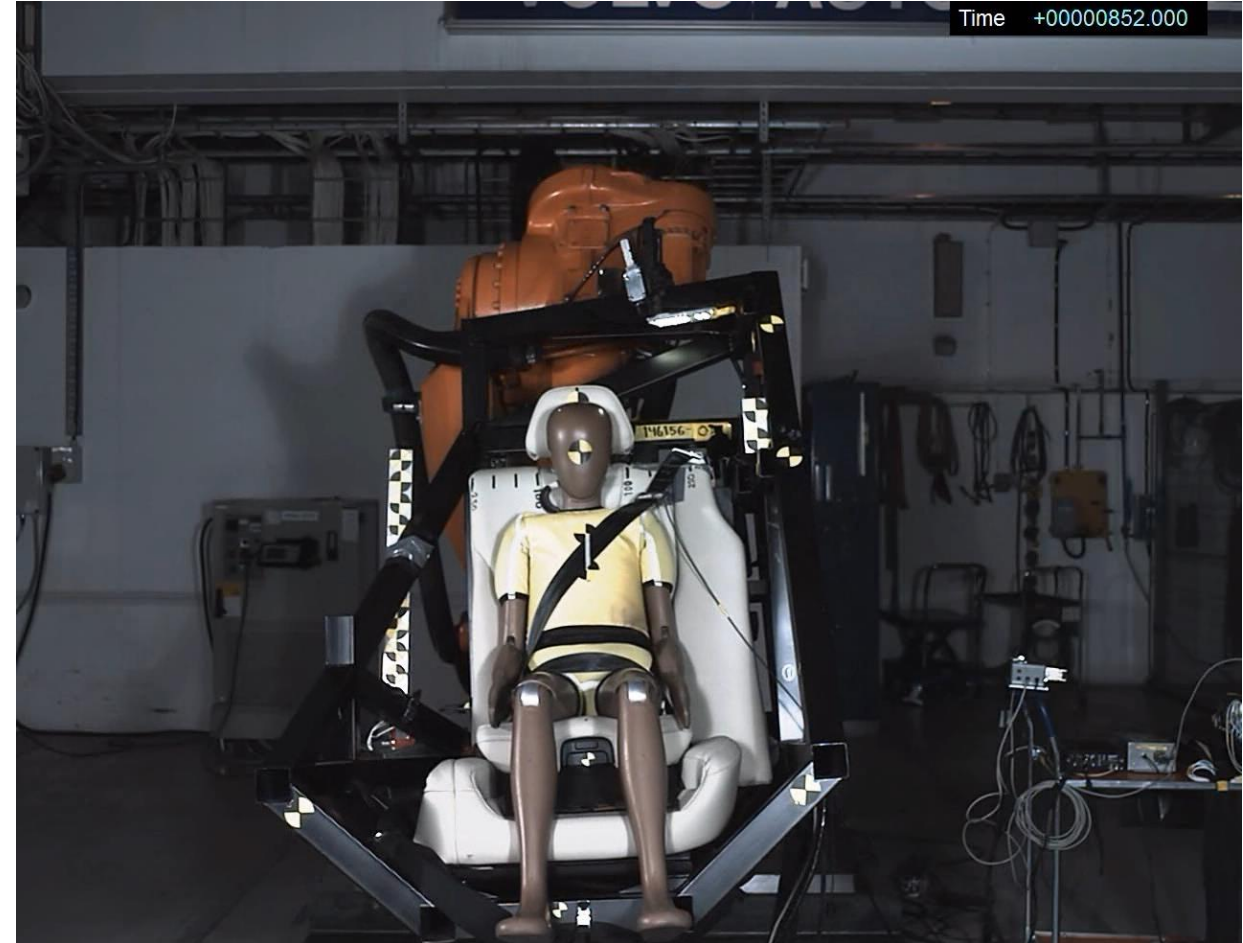


Simulating a vehicle drifting into a ditch.

No pre-pretensioner



Pre-pretensioner

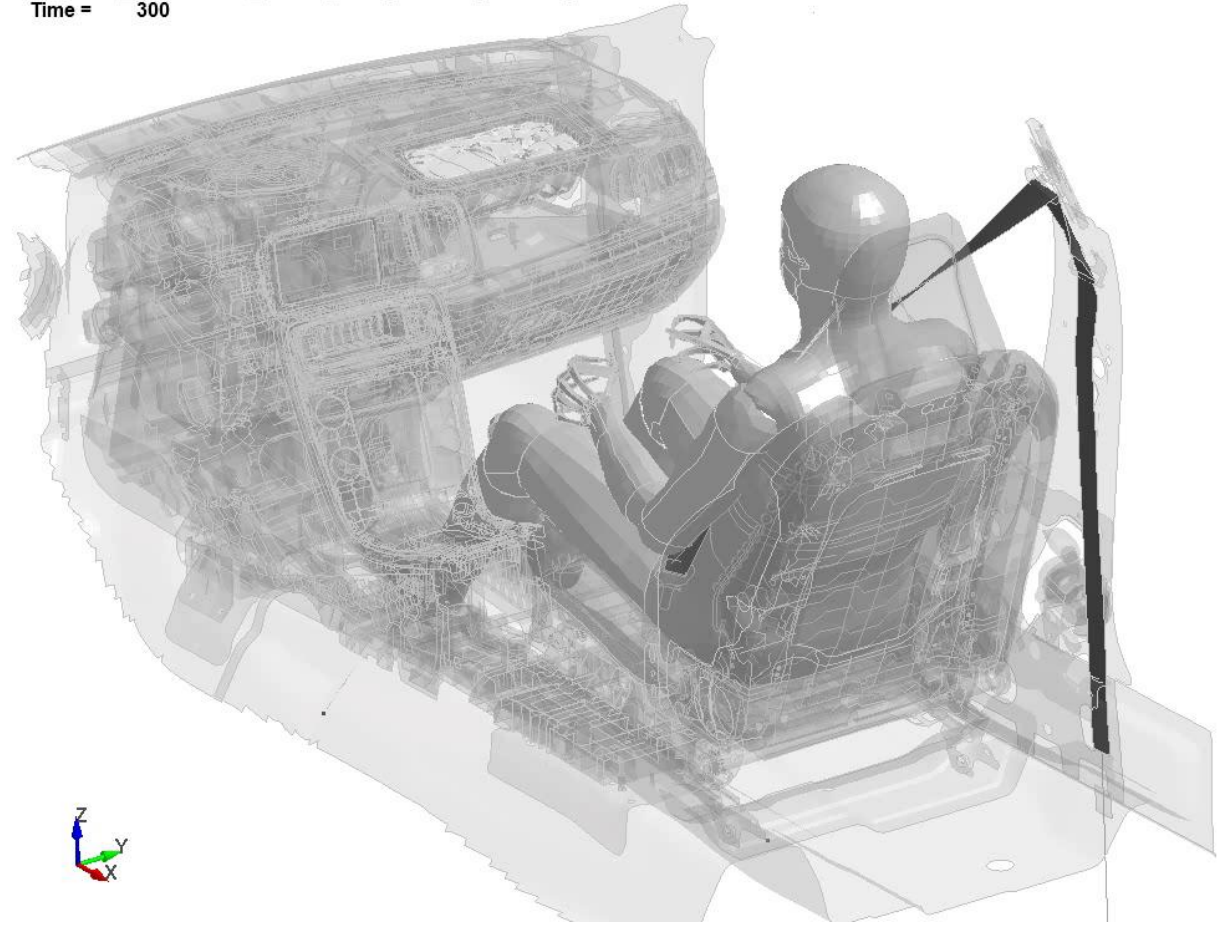


SAFER Human Body Model (HBM) v 9.0

- Released in January 2018

First of its kind to
seamlessly simulate the
occupant movement during
a turn or brake maneuver
AND injury prediction in a
subsequent crash

12_0.5s_avoidance_300N_PPT_frontal_56kmh_crash
Time = 300

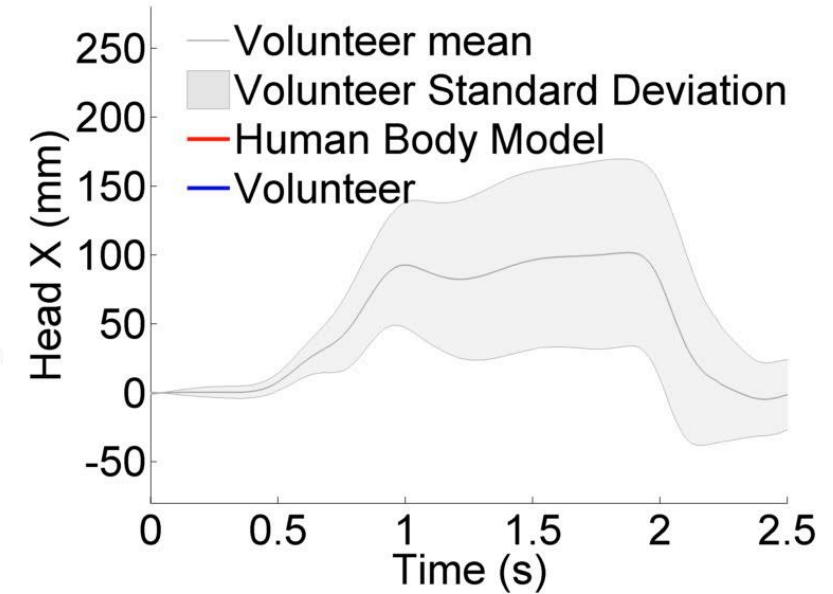
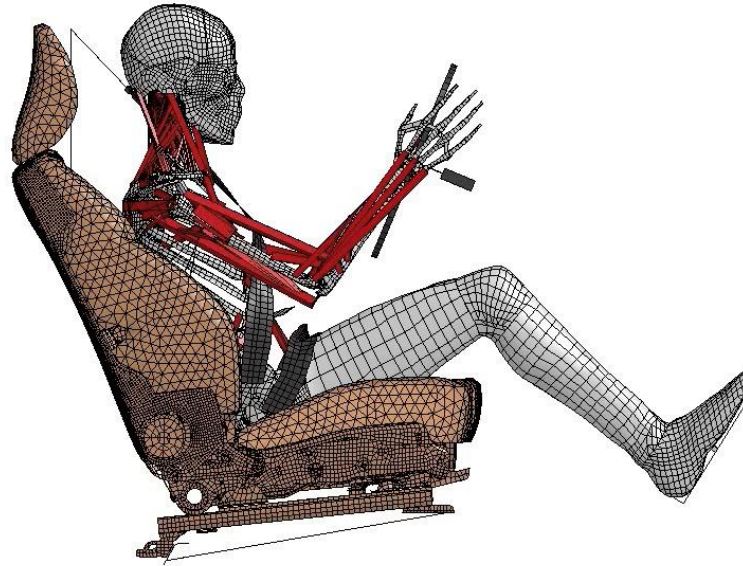
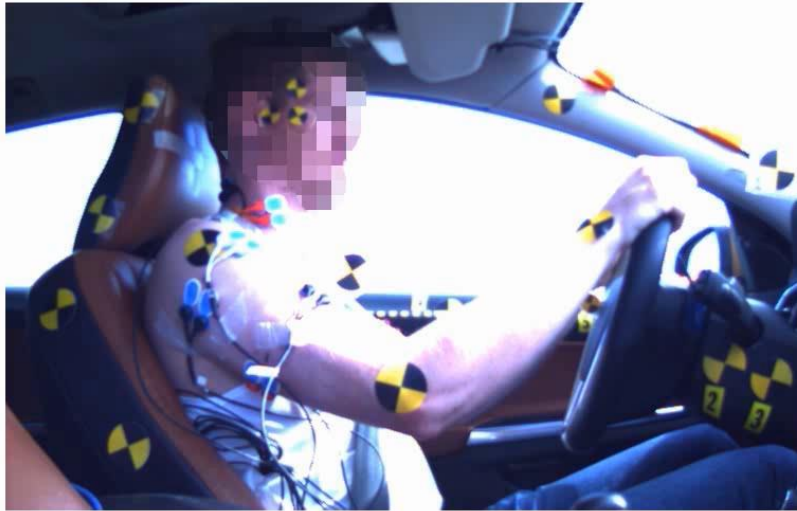


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SAFER Active Human Body Model (A-HBM)

Simulating braking event





SAFER A-HBM

Lane change event



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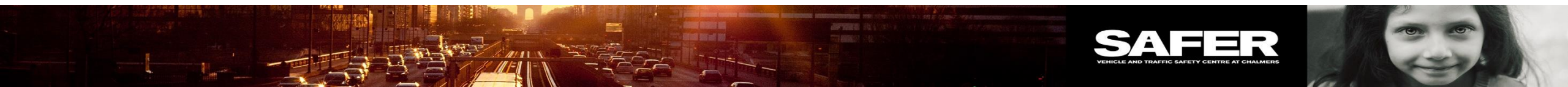


Volunteer tests for validation of A-HBM

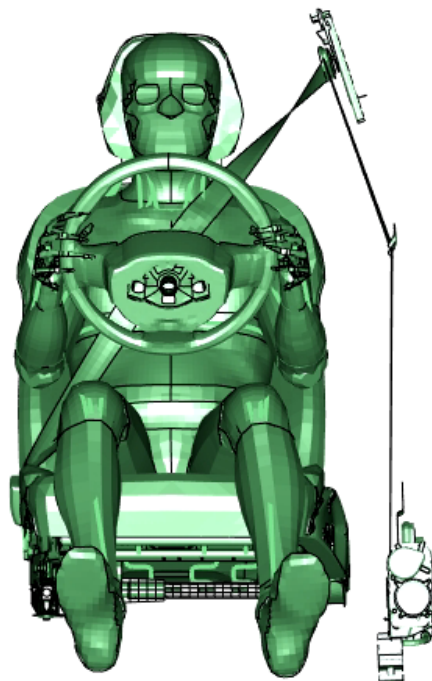
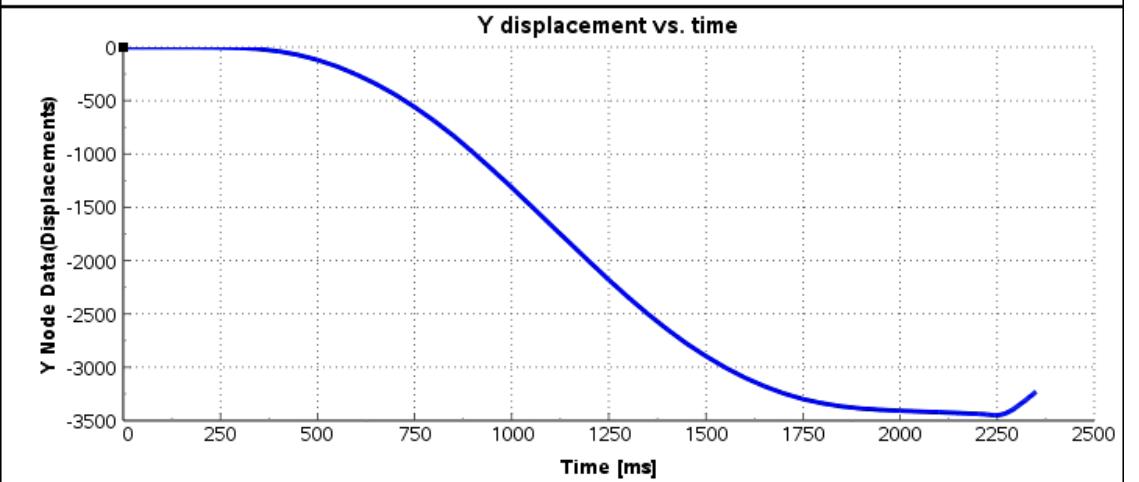
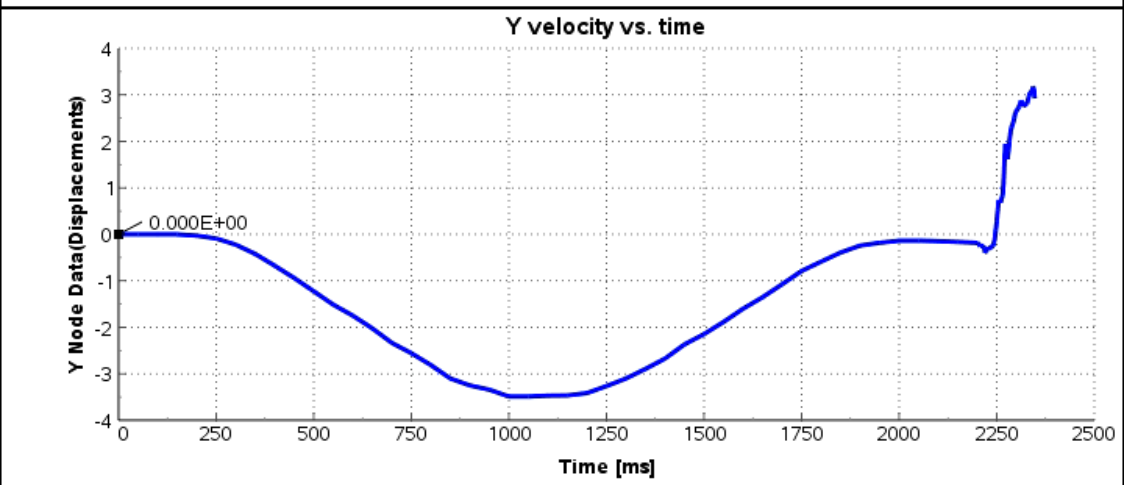
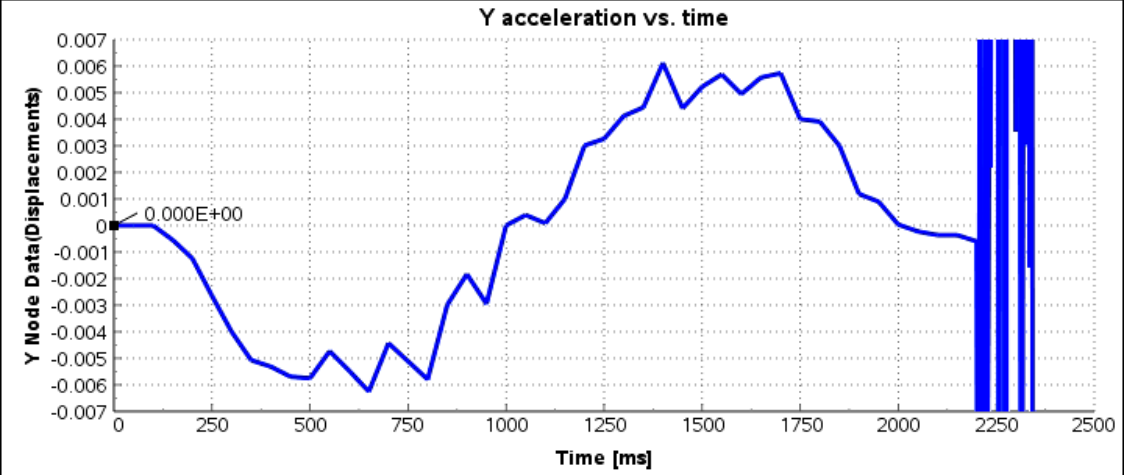
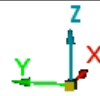
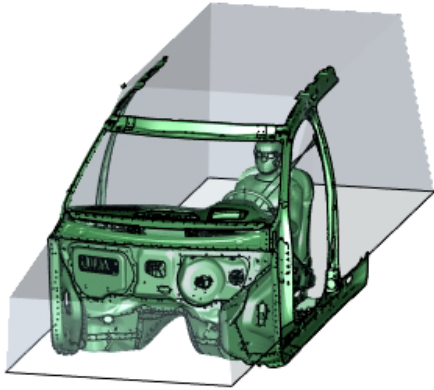
Driver



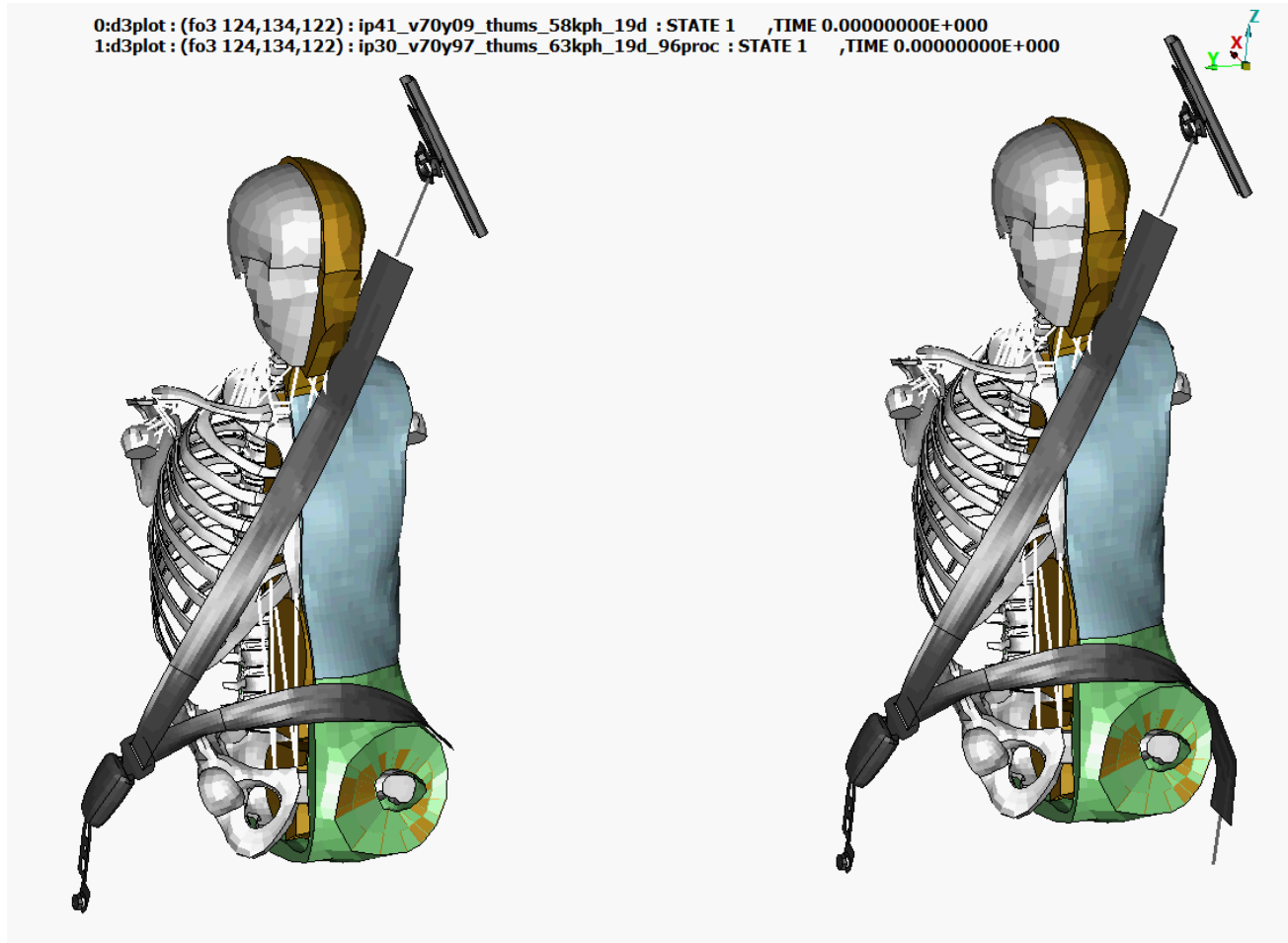
Passenger



0 ms

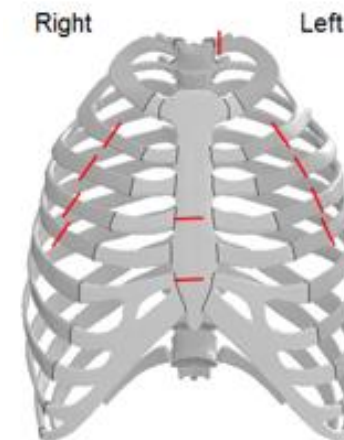


Simulating real-world scenarios – creating injury criteria



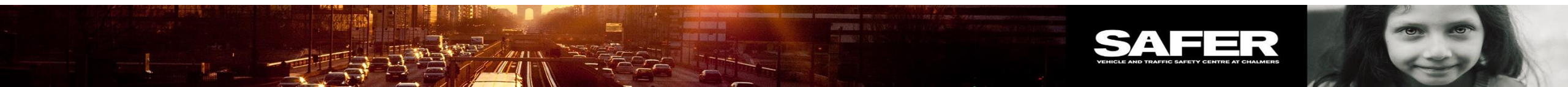
Driver in V70 gen III

Driver in V70 gen I

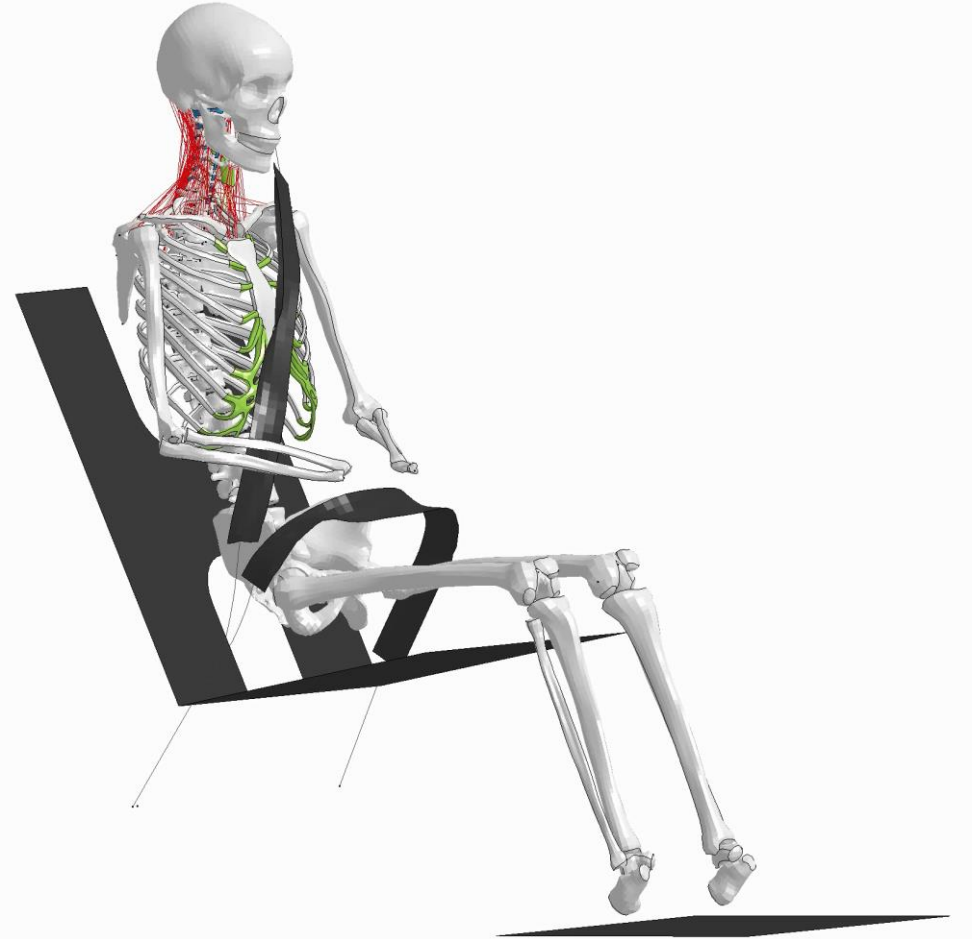


Multiple
rib fractures

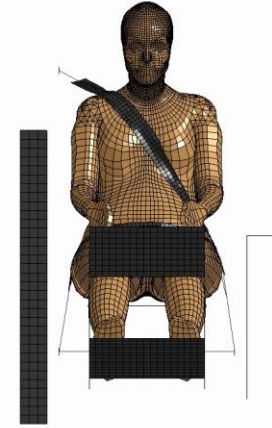
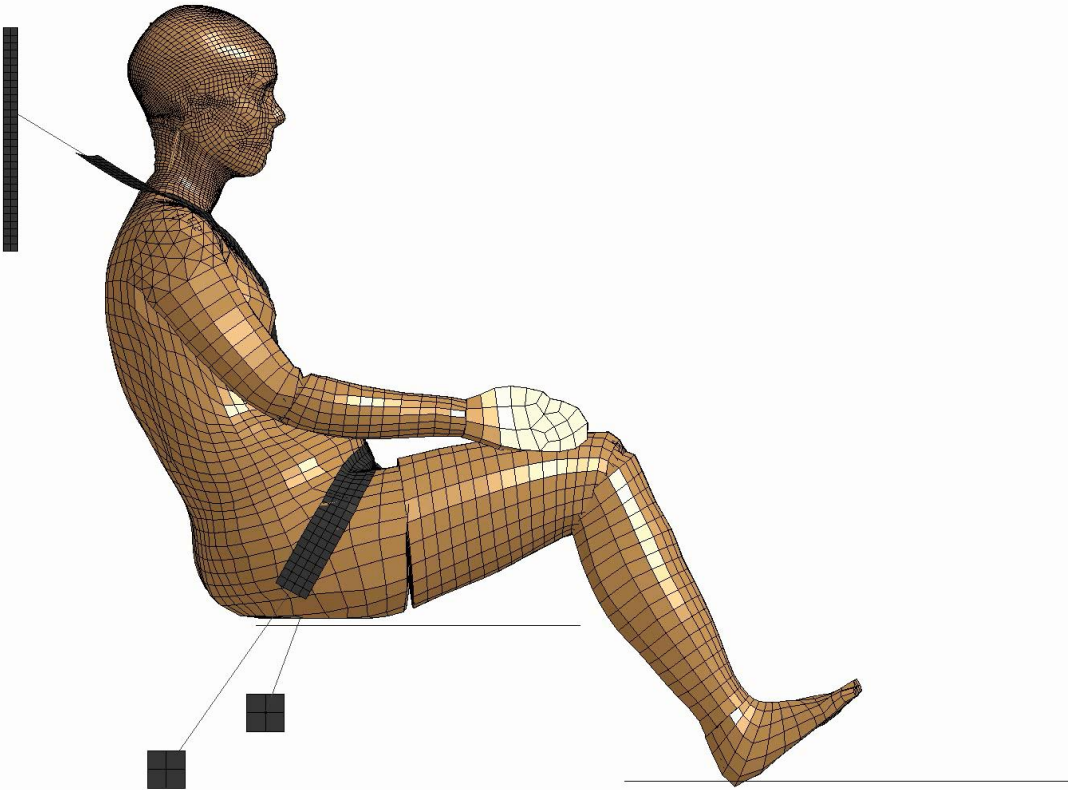
Driver in V70 gen I
Ct-scan evaluation



ViVA – Open source model, mid-sized female



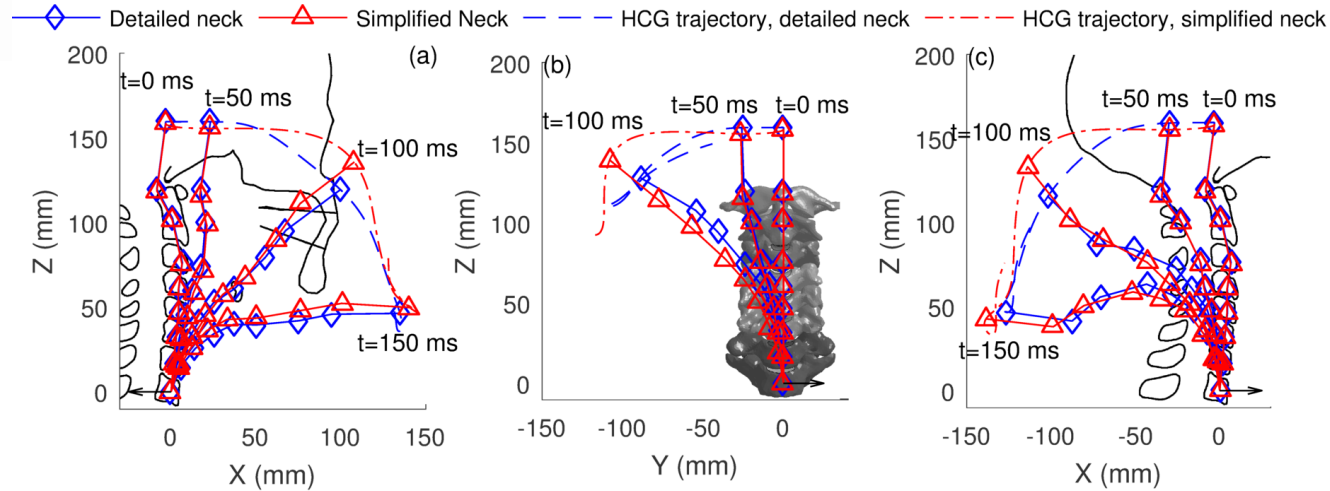
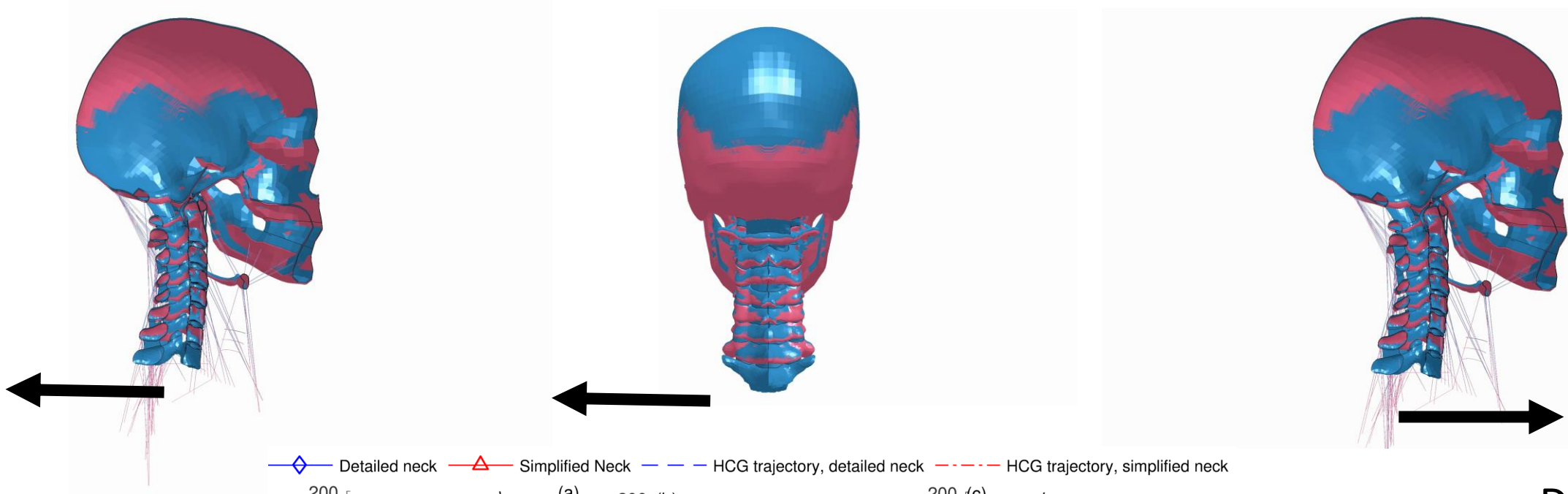
ViVA – Open source model, mid-sized female



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ViVA - Isolated Head-Neck Simulations



Detailed neck
 Simplified neck

