Literature Collection: HBM and Injury Prevention

Jobin 2019-10-11

Contents

4 CONTENTS

Introduction

1.1 Prerequisites

This is a sample book written in **Markdown**. You can use anything that Pandoc's Markdown supports, e.g., a math equation $a^2 + b^2 = c^2$.

The **bookdown** package can be installed from CRAN or Github:

```
install.packages("bookdown")
# or the development version
# devtools::install_github("rstudio/bookdown")
```

Remember each Rmd file contains one and only one chapter, and a chapter is defined by the first-level heading #.

To compile this example to PDF, you need XeLaTeX. You are recommended to install TinyTeX (which includes XeLaTeX): https://yihui.name/tinytex/.

Human Body Models

2.1 New Seat Configurations

• A Human Modelling Study on Occupant Kinematics in Highly Reclined Seats during Frontal Crashes (?)

Human experiments

3.1 Human volunteers

3.2 Post-mortem human subjects (PMHS)

• (?) : Impact Response of Restrained (PMHS) in Frontal Sled Tests: Skeletal Deformation Patterns Under Seat Belt Loading

3.3 Dummies

• (?): Rear-seat occupant in rear crash test (NHTSA)

3.4 Biofidelity

• A Methodology for Generating Objective Targets for Quantitatively Assessing the Biofideltiy of crash test dummies (?)

Head Injuries

We describe our methods in this chapter. ## Brain

4.0.1 Models

4.0.2 Experiments

• (?): A Comprehensive Study on the Mechanical Properties of Different Regions of 8-week-old Pediatric Porcine Brain under Tension, Shear, and Compression at Various Strain Rates

Spine Injuries

- 5.1 Cervical Spine
- 5.2 Thoracic Spine
- 5.3 Lumbar Spine

Lumbar spine injuries in frontal collision

- Burst fractures of the lumbar spine in frontal crashes (?)
- Thoracolumbar Spine Fractures in Frontal Impact Crashes (?)

Shoulder and Upper Extremity Injuries

We describe our methods in this chapter.

- 6.1 Shoulder injuries
- 6.2 Upper Extremity Injuries

Thoracic Injuries

Some *significant* applications are demonstrated in this chapter.

7.1 Rib injuries

- Detailed subject-specific FE rib modeling for fracture prediction (?)
- GHBMC M50-O:Evaluation of Skeletal and Soft Tissue Contributions to Thoracic Response, Dynamic Frontal Loading Scenarios (?)
 - Experimental data: (?)

7.2 Soft tissue injuries

Abdomen and Pelvis Injuries

Some significant applications are demonstrated in this chapter.

- 8.1 Abdomen
- 8.2 Pelvis

Lower Extremities

Other resources

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13.3 Biofidelity

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Head Injuries

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Spine Injuries

- 15.1 Cervical Spine
- 15.2 Thoracic Spine
- 15.3 Lumbar Spine

Lumbar spine injuries in frontal collision

- Burst fractures of the lumbar spine in frontal crashes (?)
- Thoracolumbar Spine Fractures in Frontal Impact Crashes (?)

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- 16.1 Shoulder injuries
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