

**PhD Tuan Nha HOANG**

***Biomechanical data uncertainties: modeling and propagation in predictive models of musculoskeletal pathologies.***

**Abstract**

Accounting biomechanical data uncertainties plays an essential role in the development of reliable predictive models of musculoskeletal pathologies. This PhD thesis aimed at providing theoretical background and application for assessing biomechanical data uncertainties. Firstly, the reliability of biomechanical data uncertainties was evaluated using the expert elicitation and belief theory framework. Second, a new variant version of the evidential c-mean algorithm was developed using data fusion from multiple sources. A clustering model of the children with cerebral palsy was developed as demonstrative case study for the developed methodological concepts. Obtained results showed an important effect of biomechanical data uncertainties on the prediction outcomes. Thus, accounting biomechanical data uncertainties leads to provide more reliable facts and knowledge for clinical decision making purpose.