



# Increased safety for children in traffic by addressing misuse of car seats

More than 100 000 children are born every year in Sweden. The use of child restraints determines the outcome for children in case of traffic accidents. Sweden has a long and successful tradition of protecting children in car crashes. Yet, every year, a few children are seriously injured due to absent of seat belt or improper use of safety equipment causing an increase injury risk. Research has shown that children facing forward has 5 times higher risk of getting severely or fatally injured. An observational study by NTF in 2010 and 2018 show a significant misuse of child restraints. Even a negative trend can be identified as the number of one-year old children facing forward increased.

The product design of child restraints has developed over the years and new interventions such as ISO-fix address misuse. There are standards and recommendations (e.g., ISO 29061, ISO 13215) on how children should be positioned and how child restraints can be evaluated to help designers of children safety equipment. These are under revision and are to be updated in the national standardization group for child safety in vehicles. There may, however, be gaps that are not addressing current misuse as it is still a problem.

**This aim of the thesis** is to investigate the extent of misuse of child restraint systems (1-6 year olds). Example of questions to be addressed are: what is the frequency of misuse of child seats? What are the most common types of misuse? How have the use of child seats changed over time? How could misuse be minimised with child restraint design?

The main part of the work is an observational study grounded in the ISO standard guiding evaluation of misuse of car seats at several different day-care centres. The study will not only contribute with new knowledge on the state of misuse of child restraints but also indirect assess the usability of the current ISO standard regulating the evaluation of child restraints. The work also includes the possibility to suggest changes to child seat/vehicle design to minimise misuse (e.g., recommendations on size etc.,). The study will thus contribute with important knowledge for future product design and information campaigns as well as ongoing regulatory work.

The work is expected to be an important contribution to the ongoing discussions at national and international levels regarding the development of new ISO standards and regulations for child safety in cars.

**We seek one student or a team of two students.**

**Requirements:** Swedish as language would be beneficial as the ISO standard typically being in Swedish. Knowledge of product design and evaluation including e.g., observational studies, ergonomics, interaction design, or equivalent is beneficial. Suggested educational background includes master programs such as industrial design engineering, Interaction design; Technology, Work and Health; Interactive Media technology; Human computer interaction; Integrated product design, or equivalent.

The thesis work is jointly hosted by Folksam Insurance and Integrated Transport Research Lab (ITRL) at KTH.



## MASTER DEGREE PROJECT

Depending on timing and results, you may also have the opportunity to write a scientific paper based on your work.

Your application, including CV and a motivation letter, is welcome to Maria Klingegård, traffic safety researcher at Folksam, – email: [maria.klingegard@folksam.se](mailto:maria.klingegard@folksam.se)

APPLICATION DEADLINE	Continuous
SELECTION PROCESS END	Continuous
START PERIOD	Jan 2022
	June 2022

### About Folksam Insurance Company

Folksam is one of the largest Insurance companies in Sweden with about 3500 employees. It is a non-profit, mutual insurance company with a dedicated research department focusing on traffic safety with the goal to minimise fatalities and serious injuries in the road transport system. Folksam research includes recurring consumer tests (vehicle safety, helmets, bicycle lights, etc) and traffic accident data investigations. Folksam has a long tradition of car safety for children including the development of child car seats, consumers tests and recommendations. Folksam contributes to national and international standards and certifications of traffic safety. More information at: [www.folksam.se](http://www.folksam.se)

### About Integrated Transport Research Lab - ITRL

ITRL is a multidisciplinary and multi-stakeholder arena that brings together experts from various fields in order to contribute to the development of a sustainable transport system. The main research question is *How can new technology contribute to a sustainable transport system?*  
More information at: [www.itrl.kth.se](http://www.itrl.kth.se).