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**AREA OF EXPERTISE:** Artificial Intelligence  
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**DISSERTATION TITLE:** *Methods and Technologies for Recognizing and Predicting Bedside Falls using Non-Intrusive Sensing*

Each year approximately 1/3 of the population above 65 years experience a fall. 10-20% of these falls result in injuries that require assistance from health personnel and health institutions. Along with the possibly devastating consequences to the individual experiencing the fall, falls are a major expense in the Norwegian health budget. More than 6 billion NOK or close to 2.5% of the total expenses related to health, rehabilitation and welfare expenses are related to falls.

The work presented in PhD this thesis address important questions: Is it possible to reduce the expenses to the society and the consequences to the individual of a serious fall using artificial intelligence? Secondly, how may artificial intelligence (AI) be applied in this context?

Most serious falls happen near the bed and in the bathroom. The locations challenge privacy issues which is addressed by Danielsen by applying non-intrusive sensing as a backstage for his work. He presents how it is possible to use this kind of sensing without invading privacy. Finally, he proposes how artificial intelligence may be applied, not only detecting a fall, but also how AI may be applied to predict, within a limited timeframe, the imminent risk of a future fall.