



**MARJAN ALIREZAIE** received her MSc in Computer Science from the Department of Computer and Information Science (IDA), Linköping University, Linköping, Sweden in 2011. Since then she has been a doctoral student at the Center of Applied Autonomous Sensor Systems (AASS) in Örebro, Sweden. Her research interests lie in knowledge representation and reasoning for sensor systems. She is also interested in applying and developing semantic web techniques including ontologies to bridge the semantic gap between low level sensor data and high level knowledge.

The rapid growth of data from sensors can potentially enable a better understanding and awareness of the environment for humans. In this regard, interpretation of sensor data needs to be both machine-readable and human-understandable. In order to be understandable for humans, interpretation of data may include semantic annotations in the form of context-dependent terms that hold the meaning of numeric data. There are a number of challenges, such as the amount of available structured knowledge and the inherent uncertainty in sensor data, that make the automation of the data interpretation process non-trivial. The contributions presented in the thesis focus around the design of knowledge models as well as algorithms dealing with these challenges.

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Doctoral Dissertation

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*Information technology*



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