



YVES RYBARCZYK

From Sweden to France



Project: **Inferring and modeling the intentions of road users**

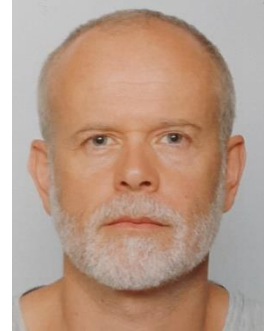
Research topic: **Informatics**

Swedish Institution: **Dalarna University**

French Institution: **Université Clermont Auvergne**

Dates of mobility: **19/06/2024 to 06/08/2024**

Program: **SFVE-A**



PRESENTATION

Yves Rybarczyk is a Full Professor and Researcher at the School of information and Engineering at Dalarna University (HDa) in Borlänge. He obtained his PhD in Robotics from his “Study of the appropriation of a teleoperated system for an efficient Human-Machine Cooperation” as a doctoral student of Evry/Paris-Saclay University (System Complexes Laboratory – CNRS) and Aix-Marseille University (Movement and Perception Laboratory – CNRS) in 2004. His teaching and research activities focus on artificial intelligence and human-machine interaction. This multidisciplinary expertise can support the modeling and prediction of complex systems, such as human behavior, for potential applications in the usability and collaboration with smart devices. For more information, visit his [institutional](#) and [ResearchGate](#) webpages.

ACTIVITIES IN FRANCE

During his mission, Dr. Rybarczyk was involved in several activities. He presented his research work on assistive technology and human-machine interaction. He had a discussion with a PhD student in computer vision about a possible collaboration on a final thesis paper on the detection of agent intentions in the visual scene. He worked with [Dr. Omar Ait Ader](#) and [Dr. Youcef Mezouar](#) on the identification of calls for projects (e.g., [EMERGENCE](#) and [CNRS](#)) and preparation of a research proposal on the modeling of intentions in road users. He familiarized himself with the [Pavin platform](#) created by the [Pascal Institute](#) for developing autonomous vehicles and studied their acceptability by the end users. He collaborated with [Dr. François Marmoiton](#), a researcher engineer in electronics, for developing and implementing machine learning based-models of intention recognition in autonomous vehicles. This activity involved tests on two types of vehicles (shuttle and robotic Zoe car) with several sensors (LiDAR, RGB camera, and radar) and different navigation systems. The autonomous steering of the shuttle is based on visual learning of the navigation environment, whereas the Zoe car is automatically guided by GPS. Finally, he reflected on a method for analyzing the reaction of the users of autonomous vehicles

based on questionnaires and evaluation of human behavior (analysis of videos). This interdisciplinary activity was supported by a collaboration with the Laboratory of Social Psychology and Cognition, [LAPSCO \(CNRS/UCA UMR6024\)](#), of Clermont Auvergne University.