Title	*Lunch Keynote Thursday: "Probabilistic and Deep Learning Techniques for Robot Navigation and Automated Driving"*
Speaker	**Wolfgang Burgard,** University of Freiburg, Germany

Abstract

For autonomous robots and automated driving, the capability to robustly perceive environments and execute their actions is the ultimate goal. The key challenge is that no sensors and actuators are perfect, which means that robots and cars need the ability to properly deal with the resulting uncertainty. In this presentation, I will introduce the probabilistic approach to robotics, which provides a rigorous statistical methodology to deal with state estimation problems. I will furthermore discuss how this approach can be extended using state-of-the-art technology from machine learning to deal with complex and changing real-world environments.

Biography

Wolfram Burgard is a Professor of Computer Science at the University of Freiburg where he heads the Laboratory for Autonomous Intelligent Systems. His interests lie in Robotics, Artificial Intelligence, Machine Learning, and Computer Vision. He has published over 400 publications, more than 15 of which received best paper awards. In 2009, he was awarded the Gottfried Wilhelm Leibniz Prize, the most prestigious German research award. In 2010, he received an Advanced Grant from the European Research Council. In 2021, he received the IEEE Technical Field Award for Robotics and Automation. He is a Fellow of the IEEE, the AAAI, the EurAI, and a member of the German Academy of Sciences Leopoldina as well as of the Heidelberg Academy of Sciences and Humanities.