Workshop on World Perception for Autonomous Applications in Agile Manufacturing

Dr. Michael SUPPA, Roboception GmbH, Germany, michael.suppa@roboception.de

Prof. Markus Vincze, Technical University of Wien, Austria, Vincze@acin.tuwien.ac.at

Dr. Loreto Susperregi, IK4 Tekniker, Spain

loreto.susperregi@tekniker.es

Dr. Maximo ROA, Roboception GmbH, Germany, maximo.roa@roboception.de

ERF 2019, Bucharest, March 21st, 2019





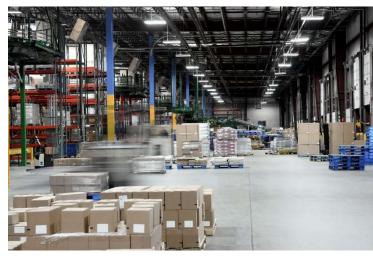


10:45	Introduction by the moderators/definition of key questions	Brought to you	by SPARC
10:55	Presentations:		
	Use cases in perception for Agile Manufacturing,		
	Dr. Maximo Roa, Roboception GmbH, Germany		
	Vision techniques for robots in industrial and home environments,		
	Prof. Markus Vincze, Technical University of Vienna, Austria		
	Intelligent, flexible and safe operations in future factories,		
	Ander Iriondo, IK4-Tekniker, Spain		
	Perception challenges in e-commerce,		
	Dr. Graham Deacon, Ocado Technologies, UK		
	InFuse, Perception for Space Applications,		
	Dr. Jeremi Gancet, SAS, Belgium		
12:05	Interactive session/round table discussion of the key questions with all saudience	peakers	and the
12:20	Conclusion for roadmapping and take home message		
12:30	End of workshop		

Link to the website: http://roboception.com/erf2019 **roboception**

Sense, Reason, Act.

- Perception and manipulation systems must be tightly coupled
- Flexible production
- Real-time requirements
- Users need intuitive and integratable robotic solutions
- Ready-to-use and easy-touse functionality





Agile Manufacturing

Perception is one of the key technologies for flexible production

- In flexible and agile production, robots must be able to reliably detect and locate work pieces and human collaborators.
- In logistics, manual work is still pre-dominant due to the complexity of tasks and the variation of objects.
- Individual engineering of solutions is costly and does not scale

Agile Manufacturing

Requires a fast adaptation of a system to new environments

- Avoid approaches that require an extensive re-training of the system in changing environments
- Combination of learning and model based approaches show great potential
- Separation of the perception part from the general task description
- Low level perception modules or front-layers in the learning approaches.
- Business models for open source software and commercial platforms including data models

roboception

Key questions

- 1. What perception tools, toolboxes and approaches (learning, model-based) are currently used in industrial automation and logistics, and what are their advantages/shortcomings?
- 2. Which are major challenges and potential step changes i.e., what is required from the tools/platforms, in order to increase flexibility in production?
- 3. Which business models in terms of data/software tools/platforms do you see and how do open source tools and commercial tools adapt to these models?

Statements

- It is necessary to deal with with dynamics/motion in the scene
- Workflow monitoring system, object centric approach, visual learning system
- New task representations going away from metric representations
- Extension of data bases with action labels check in autonomous driving community
- Using flow information in mobile applications to support navigation

Perception Group

Closing

Workshop Slides:

http://roboception.com/erf2019

Interest in Participating in TG Perception:

michael.suppa@roboception.de