

1ST ADAPT WORKSHOP

Advanced Agile Production



WELCOME + INTRODUCTION

Organizers:

- Roel Pieters, Tampere University (FI)
- Max Pfingsthorn, OFFIS (DE)
- Pierre Loonis, PROXINNOV (FR)
- Farzam Ranjbaran, Jaonary Rabararisoa, CEA (FR)
- + others

METRICS – Metrological Evaluation and Testing of Robots in International Competitions

ADAPT – Advanced Agile Production competition

Twitter: [@METRICSproject1](https://twitter.com/METRICSproject1)





AGENDA – 1ST ADAPT WORKSHOP

- Welcome; Roel Pieters, TAU
- METRICS introduction; Guillaume Avrin, LNE
- ADAPT Competition; Roel Pieters, TAU
- ADAPT Field campaign; Max Pfingsthorn, OFFIS
- ADAPT Cascade campaign; Farzam Ranjbaran, CEA
Jaonary Rabararisoa, CEA
- Open discussion

Please ask questions via the chat!

Twitter: [@METRICSproject1](https://twitter.com/METRICSproject1)



THE ADAPT COMPETITION

The ADvanced Agile ProducTion (ADAPT) competition aims at addressing typical **dexterous manipulation tasks** (e.g., object grasping, manipulation and precision placement) of **industrial components** involving intuitive, multi-modal interfaces and human communication channels (e.g., hand-guiding, speech, gestures), for the assembly process of an industrial mechanical system.

- Collaborative robots
- Computer vision and AI
- Assembly for Agile Production





THE ADAPT COMPETITION

The Advanced Agile Production (ADAPT) competition for robot evaluation focuses on benchmarking of perception and human-robot interaction in two campaigns:

- **Field campaigns** are physical competitions with real robots; open to public
- **Cascade campaigns** are online competitions with data

Benchmarking for:

- Perception: detection, pose estimation and quality control
- Human-robot interaction: collaborative robot programming and coordination



THE ADAPT COMPETITIONS (TENTATIVE)

ADAPT organizes 2 dry-run campaigns and 2 field + cascade campaigns

- **Field campaigns** are physical competitions with real robots; open to public
- **Cascade campaigns** are online competitions with data

	2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Dry run field campaign		Feb-March: workshop on 26th Feb.										
Dry run cascade campaign			April-May									
1st field campaign												
1st cascade campaign												
2nd field campaign												
2nd cascade campaign												



THE ADAPT CHALLENGES

Robot perception

1. Object detection and classification (FBM)
2. Object pose estimation (FBM)
3. Assembly quality control (FBM)
4. ...

Human-robot interaction

1. Collaborative programming (TBM)
2. Collaborative assembly (TBM)
3. ...

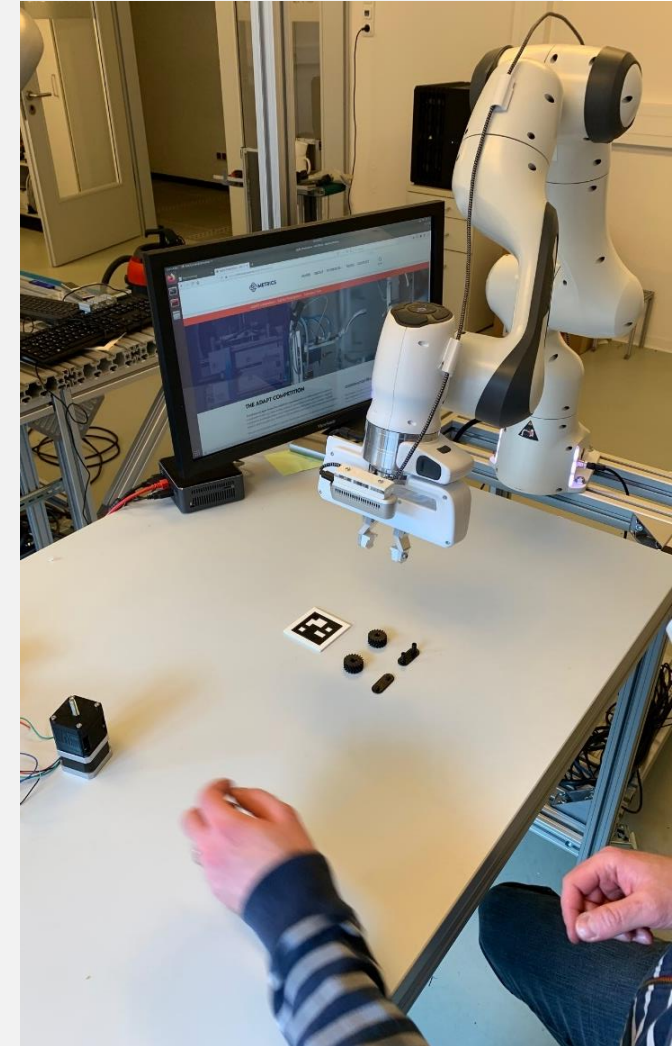
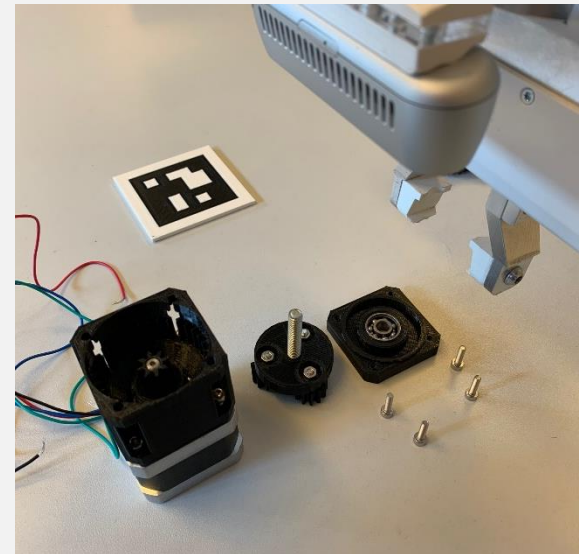




ADAPT FIELD CAMPAIGN

Physical competition with **real robots, sensors** and **assemblies**

- Functionality Benchmarks (FBM) *and* Task Benchmarks (TBM)
- Improved over the years
- 2 TBMs selected, but could be extended
- 1st Field campaign Q1, 2022





ADAPT CASCADE CAMPAIGN

Online competition on **dataset** collected during **field** campaign

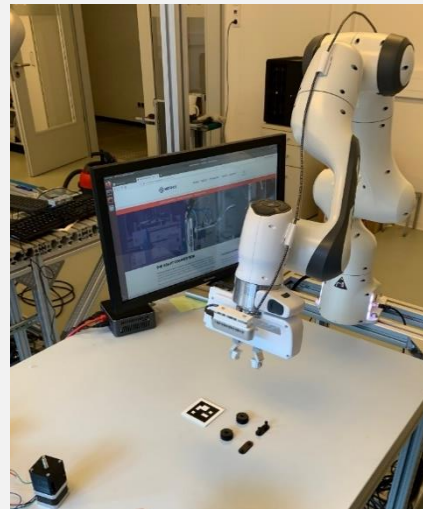
- Functionality Benchmarks (FBM)
- Improved over the years
- 3 FBMs selected, but could be extended
- 1st Cascade campaign April - May 2021



ADAPT TESTBEDS

For testing and participation in field campaigns:

- OFFIS, Oldenburg (DE)
- Tampere University, Tampere (FI)





JOIN ADAPT!

As competing team

- Student or hobby team
- Research institute or center
- SME developing systems (sensors, robots) or solutions

Why?

- Recognition and exposure!
- Awards and badges
- Demonstrate your research or solution



JOIN ADAPT!

As sponsor or stakeholder

- Support the organization of benchmarking in Agile Production
- Provide a challenge or dataset
- Access to results and talent

How?

- Sponsor a participating team
- Sponsor an award or prize
- Sponsor an event



MORE INFORMATION

All competition related information:

- ADAPT evaluation plan
- <https://metricsproject.eu/agile-production/>
- agile.production@metricsproject.eu

THANK YOU

www.metricsproject.eu | agile.production@metricsproject.eu

