

eu
Robotics
Topic Group on Miniaturized Robotics

Reminder : minirobots-eurobotics@femto-st.fr

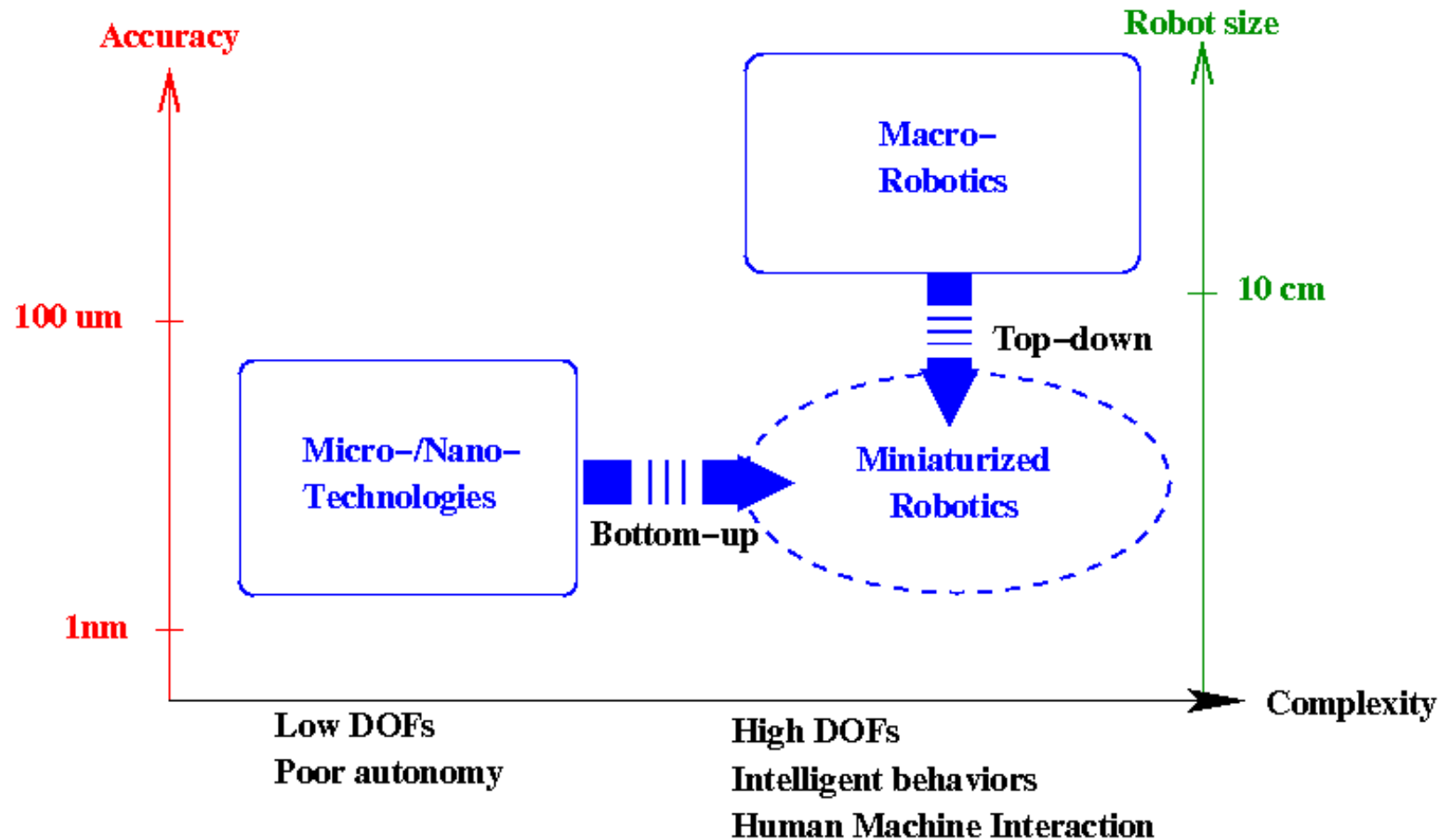
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What euRobotics aisbl Board of Directors expects from a Topic Group:

- The TGs should provide input to each MAR Cycle.
- Each TG should be able to identify parts of the MAR that they have impacted on.
- TGs should collect and communicate PPP KPI data relevant to the sector that they represent.
- Each TG should collectively be aware of any advances in the state of the art in their area and communicate changes during the MAR Cycle to ensure that the MAR is timely and relevant.
- Each TG should identify synergies and overlaps to other TGs and report those to the TG TAB.

Area of the TG on Miniaturised Robotics



Scientific & Technological Challenges

Bottom-up:

enhance μ/n -techs by robotics
push = size, pull = complexity

Improve reliability and
repeatability

Enhance dexterity and
mobility

Bring intelligence and
autonomy

Exploit physics at lower
scales

Top-down:

enhance robotics by μ/n -techs
push = complexity, pull = size

Reduce overall robot
dimensions

Handle smaller objects with
high accuracy

Produce complex micro-
assembly processes

Use of natural materials

Market for Miniaturised Robotics

2-digit growth

Consumer market

small robot toys, health monitoring, smartphone robotic add-ons

Micromechatronics

watch industry, mini-robot components, natural components

Integrated Miniature Systems

smart optical switches, small inspection robots

Healthcare

micro-robotic surgical tools, miniature diagnostic systems,
new drug development

Scientific Instrumentation

nanosensors, near-field microscopy, nanoscience, nanomedicine

Topic Group Composition

Not fully
up to date

Current members within euRobotics

2 SME (FR,CH)

12 RES (FIN_{x3}, FR_{x2}, IT_{x2}, UK_{x2}, D, NL, SE)

Current interest from outside euRobotics

3 SME (D, ESP), 4 RES (D, BE, FR_{x2}), 1 OTH (FR)

Currently identified potential support:

1 IND (D)

6 SME (D_{x4}, CH_{x2}, BE)

10 RES (UK_{x4}, CH_{x3}, FR_{x2}, CZ)

Needs more
industrial
commitment

Contribution to the SRA&MAR

The euRobotics Multi-Annual Roadmap (MAR) is fed by contributions from the Topic Groups through a bunch of standardised forms.

Some of us have participated to the edition of some forms... not without result:

- Miniaturised Robotics is identified as a “Robot Format” (1 page in the SRA)
- “Miniature” appears 14 times in the current version of the MAR document (basis of Call 1).

Let us keep on going !

Next steps

MAR edition for Call 2 (ICT24, 2015)

MAR Update (Call 3&4, 2016-2017)

“Manifesto” on Miniaturised Robotics

Which needs for micro/nano-robotics ?

MAR edition for Call 2 (ICT24, 2015)

Contribute to the new sections :

- Healthcare
- Consumer
- Logistics and Transport



ASAP

Sharpening of technical content

Improve cross linkage between
sections

Identification of gaps/unclear content

MAR Update (Call 3&4, 2016-2017)

Agenda:

- Strategy workshop (may)
- BoD approval (june)
- Initial communication to EU (july)
- Final document (september)

What ?

- Technology Step Changes

“Manifesto” on Miniaturised Robotics

What ?

- A 5-page document describing what means “Miniaturised Robotics”

When ?

- Decided on the workshop in Paris (jan)
- In parallel to the new MAR

Which needs for micro/nano-robotics ?

Goal:

- identify the needs and opportunities for Europe in micro/nano-robotics
- identify gaps and complementarities wrt. the current SRA/MAR

When ?

- Workshop in Brussels, next week