

FORUM-MD TG-AI: why, what and who?

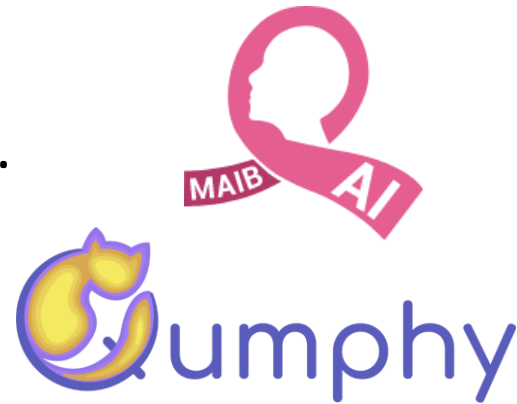
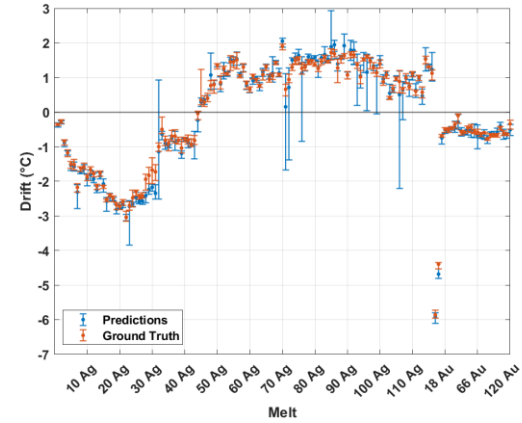
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Does metrology need AI?

- Potential benefits to metrology are the same as any other area.
 - Automate tasks that are difficult to specify algorithmically
 - Identify patterns and correlations in very large datasets and make predictions based on the findings
- Such problems often occur in modern metrology.
 - Complex systems: multi-scale, multi-physics -> very large datasets
 - Quantitative imaging: object identification & extraction



However...

- Measured values need an associated measurement uncertainty to be meaningful.
- Measurement uncertainty evaluation [GUM] needs a measurement model.
- AI models are very different from typical measurement models.
 - combination of algorithm and data
 - parameters often not physically meaningful
- Traceability may also be a problem.

Does AI need metrology?

- Increasing amount of concern about whether AI is “safe”.
 - unbiased, ethical, always right, well-scoped, ...
- Legislation, policies and guidance being introduced.
- EU AI Act mentions conformity 193 times in 144 pages:
 - “Moreover, the infrastructure related to the governance and the conformity assessment system should be operational before 2 August 2026...”
- Conformity assessment is strengthened by metrological good practice.
- But this is a multi-disciplinary challenge.

Metrology and AI

- Metrology needs AI to address measurement challenges in an increasingly complicated world.
- AI needs metrology to play its part in bringing confidence that algorithm outputs are safe and reliable.

- FORUM-MD voted to form a Task Group, originally on “Secure and Trustworthy AI”.
- After discussion, proposed revision of name to “Building Safe and Trustworthy AI”.

FORUM-MD TG-AI scope

- “The purpose of this group is to respond to the growth of AI by providing **guidance to the CIPM and other stakeholders** covering both the **use of AI for metrological purposes and the provision of metrological services to support the conformity assessment of AI**. The scope includes all forms of AI, but individual activities may focus on particular algorithms or technologies in order to maximise impact.”

FORUM-MD TG-AI activities

1. **Build/define a common vocabulary for terms used in the assessment of AI/ML.**
2. **Assess existing legislation and guidance on AI/ML conformity assessment to identify how metrology can contribute.**
3. Engage with AI/ML safety bodies and experts in fields related to AI/ML.
4. Provide guidance to the CIPM on good practice in traceability, uncertainty and bias evaluation for AI/ML algorithms.
5. Assess existing metrics and testing methodologies for AI/ML.
6. Assess the metrological aspects of other concepts used in AI/ML trustworthiness.
7. Collaborate with other FORUM-MD TGs to establish requirements for metrological data becoming “ready for AI/ML”.

Membership & meetings

- Currently have 11 members.
- Meet every 6 weeks.
- Planning to invite technical experts to present relevant work in future.
- Welcome new members, and welcome suggestions for future presenters.



Thank you

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