

NeurIPS competitions Evolution and Opportunities

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Google, U. Paris-Saclay and ChaLearn



The value of Competitions



Research: advance state-of-the-art, venturing in new domains.



Application: cost-effective way to bring solutions from research to applications (with societal or economical impact).



Education: curiosity-oriented learning, “playful” resource for students to learn curricula, upskill workforce to be a part of the digital transformation.

NeurIPS challenges in ML workshops

Challenges in Machine Learning
(CiML 2014-2020) Workshop Series
<http://ciml.chalearn.org/>

- 2014 – Themes (bioinformatics, platforms, CV and applications)
- 2015 – Open innovation and competitions
- 2016 – Gaming and Education
- 2017 – Research tool
- 2018 - ML competitions in the wild – playing in the real world or the real time
- 2019 – ML competitions for all
- 2020 - ML competitions at the Grassroots



Competition Track @NeurIPS (2017 – now)

Thanks to the chairs

Sergio Escalera, University of Barcelona

Markus Weimer, Microsoft Research

Ralf Herbrich, Amazon

Raia Hadsell, DeepMind

Hugo Jair Escalante, INAOE & CINVESTAV

Katja Hofmann, Microsoft Research

Douwe Kiela, Facebook AI Research

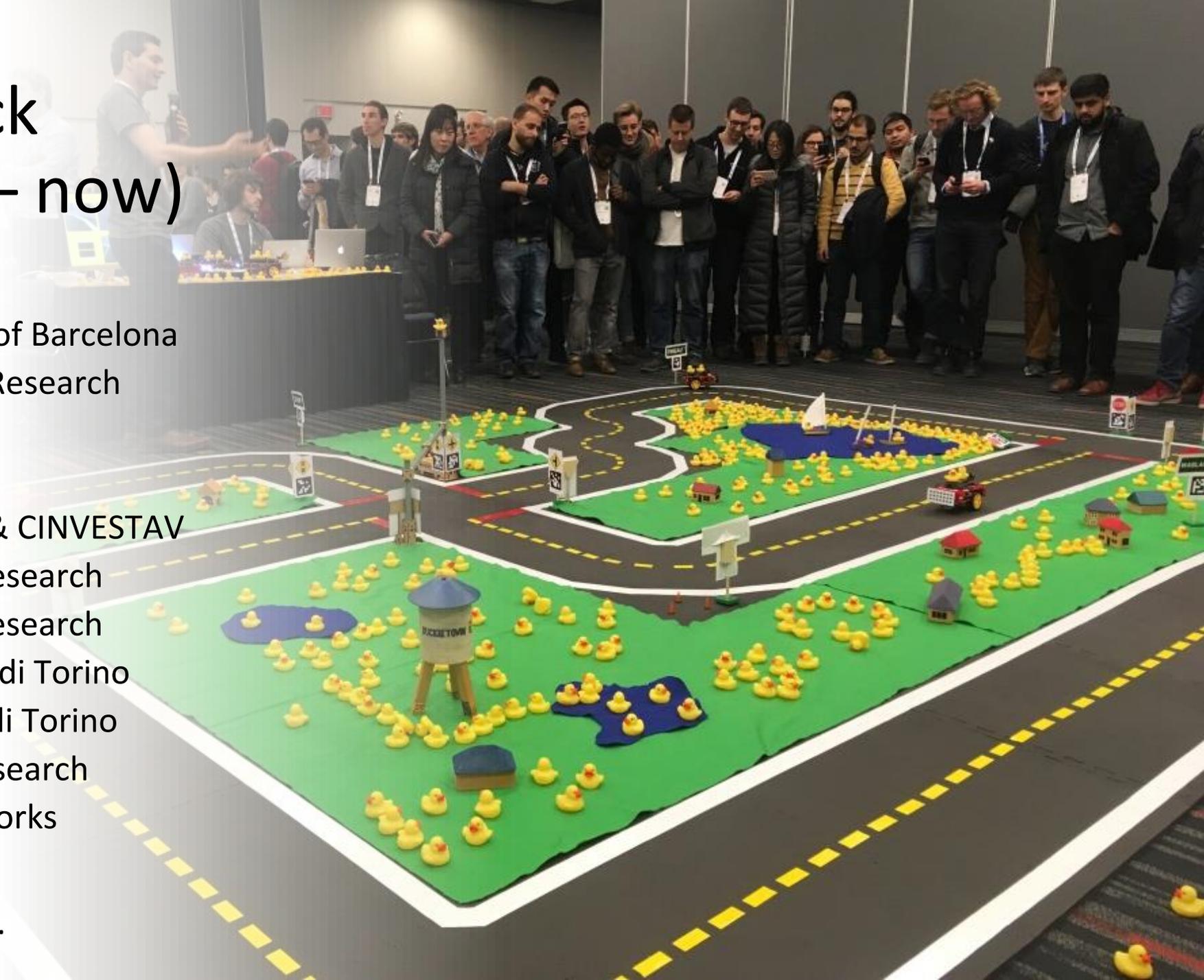
Barbara Caputo, Politecnico di Torino

Marco Ciccone, Politecnico di Torino

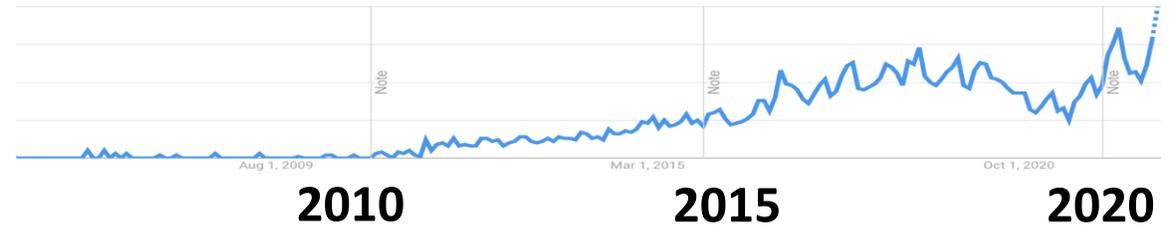
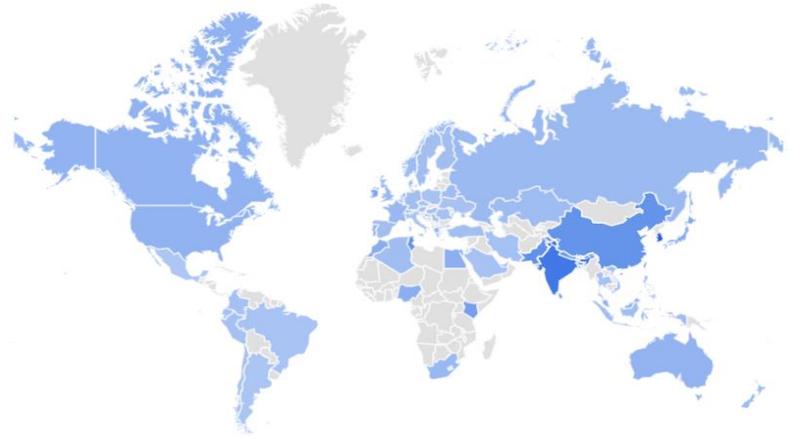
Gustavo Stolovitzky, IBM Research

Jake Albrecht, Sage Bionetworks

Thanks to hundreds of reviewers.



Interest in Kaggle competitions (since 2004)



NeurIPS Competitions Evolution

Rigorous peer review process.
Springer proceedings.

2017

2018

Selection criteria: Task, Protocol, Logistics.
Encouragements to D&I.

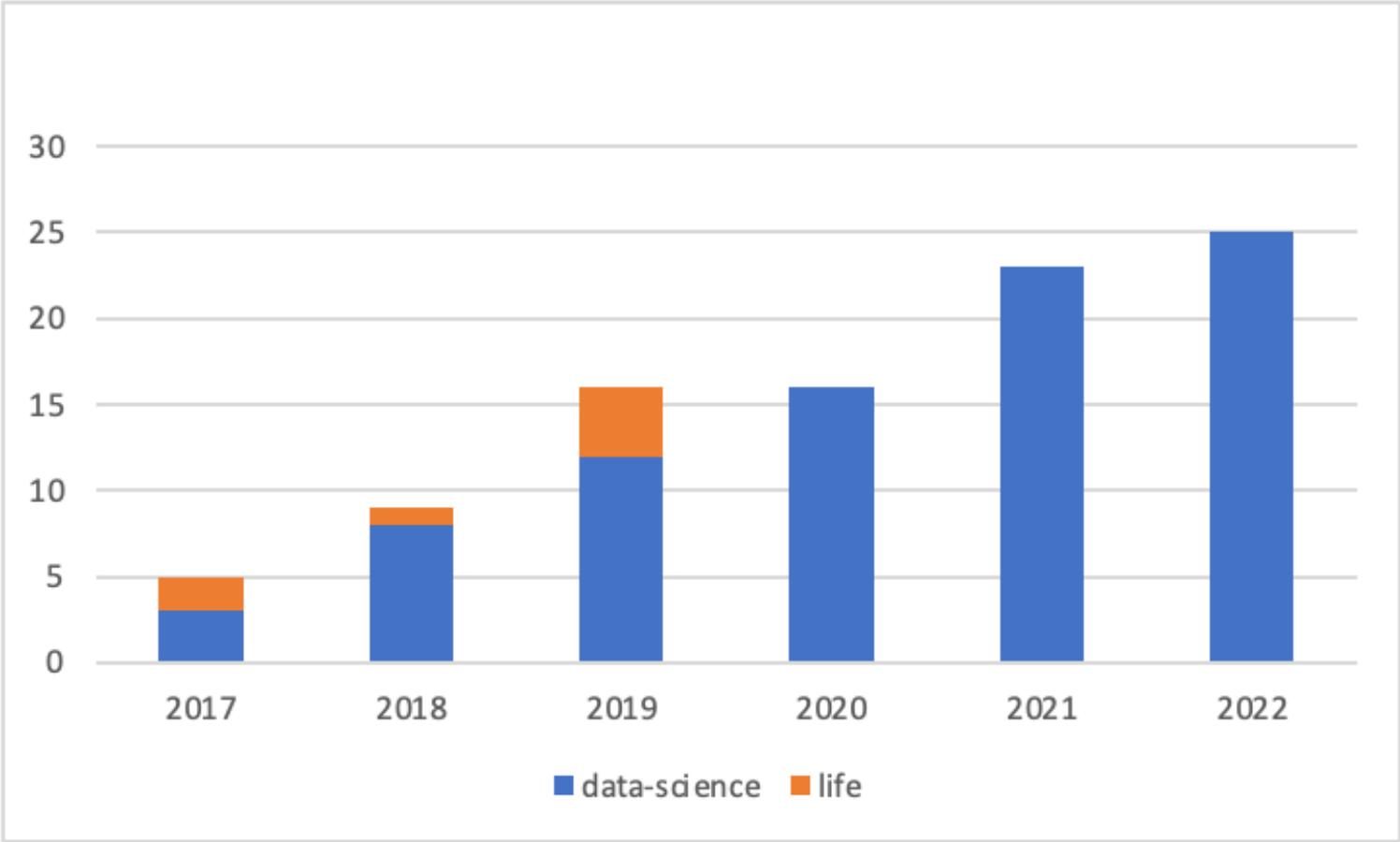
Addition of humanitarian and/or positive
societal impact.
PMLR proceedings.

2019

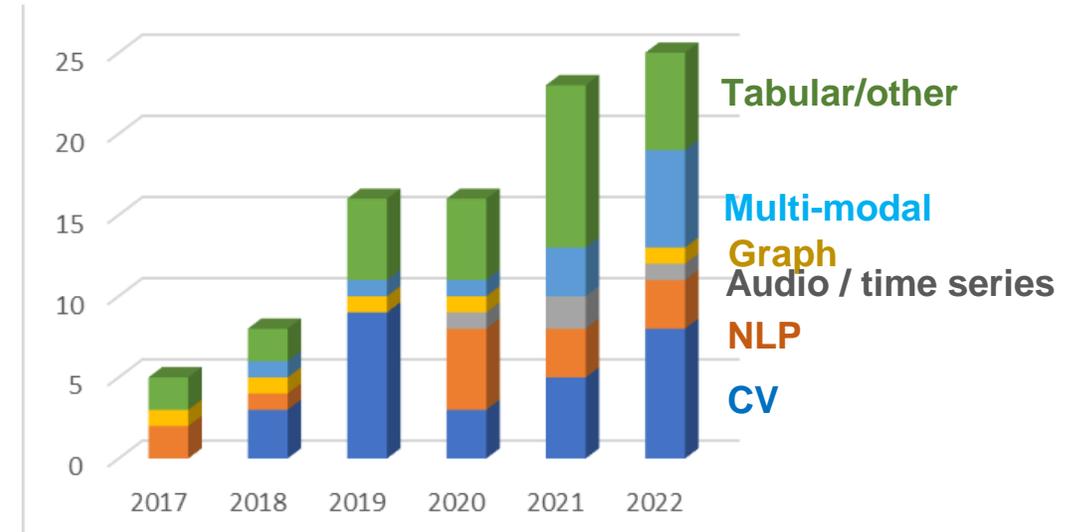
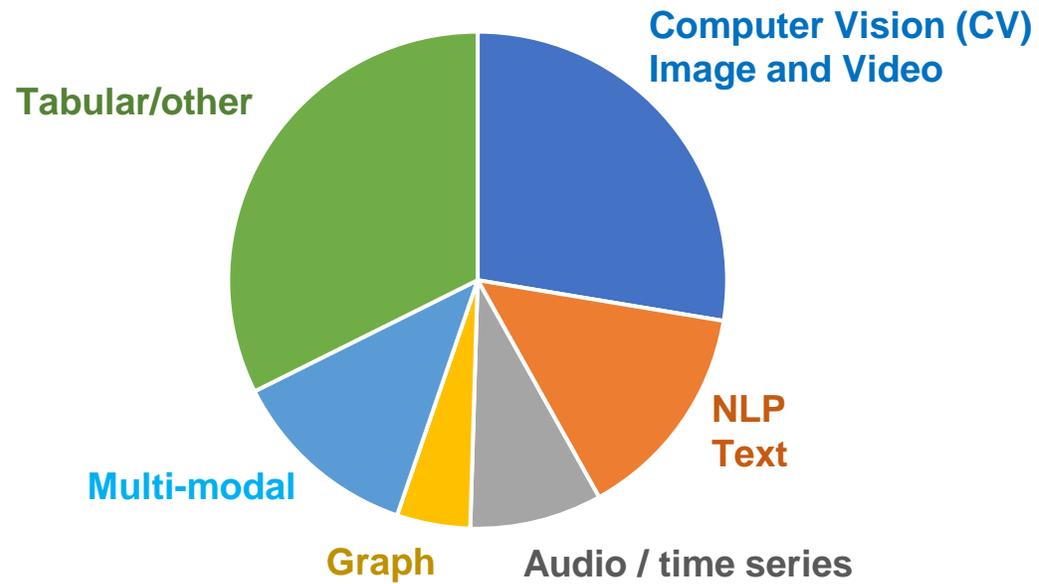
Normalization of selection criteria and
dissemination

2020–2022

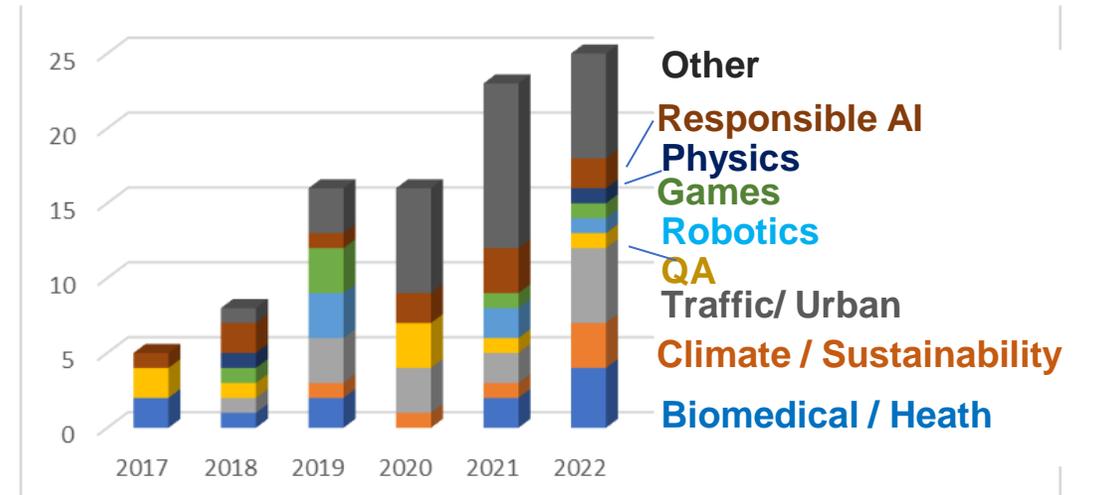
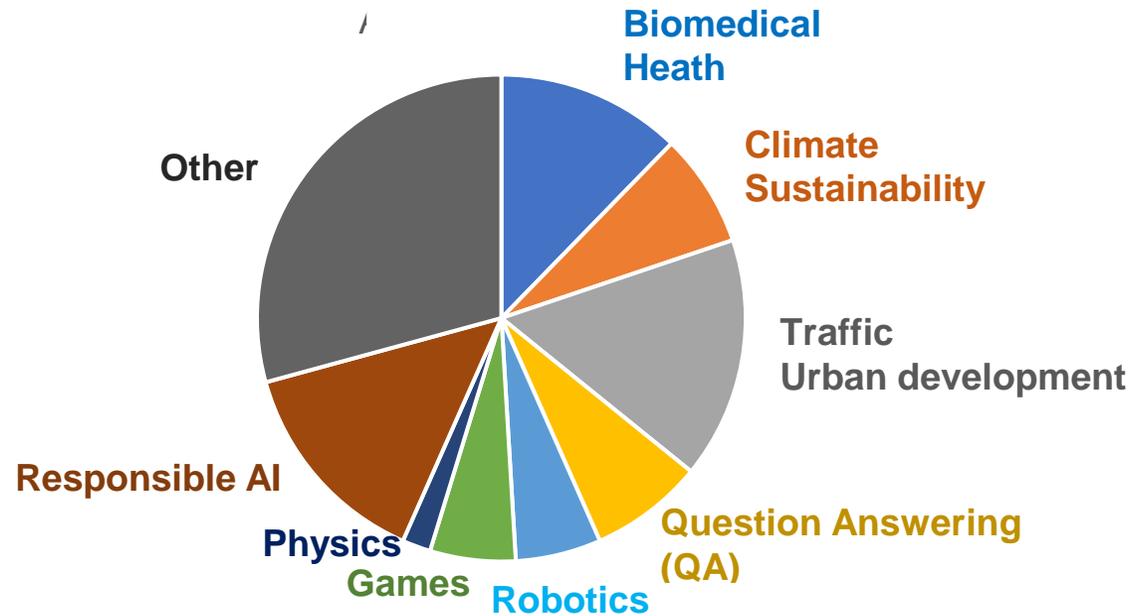
Accepted competitions



Modalities

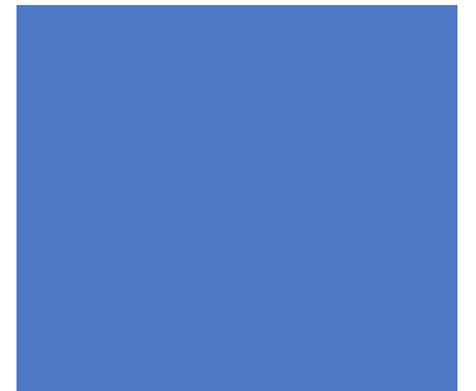


Applications



Monitoring progress

- Survey for each competition (participation, D&I)
- Searchable database of competitions (papers, code, data)
- Uniform resource locator
- H-index of challenges
- Long term impact award



Sharing wisdom and resources

- Forum of organizers
- Standard competition templates
- Interoperability of platforms
- Book on [AI Competitions and benchmarks: the Science behind the Contests](#)



Conclusions

Our community is very alive and dynamic.

But we need to make progress on monitoring:

Diversity in organizers and participants

Evolution and balance of themes

Longer term impact

We need to find means of encouraging:

Addressing real world problems
experienced by global and
local communities

Following fast technology mutations in ML

Resurrecting the notion of “coopetitions”

Your turn!

Competition track 2023:
Around Feb 2023

- Check previous year proposals
- Many free platforms available

