Leveraging Diversity in Online Interactions

DHHAI Workshop @ HHAI 2023

27 June 2023

Nardine Osman, Bruno Rosell i Gui, Carles Sierra

IIIA-CSIC

Objectives

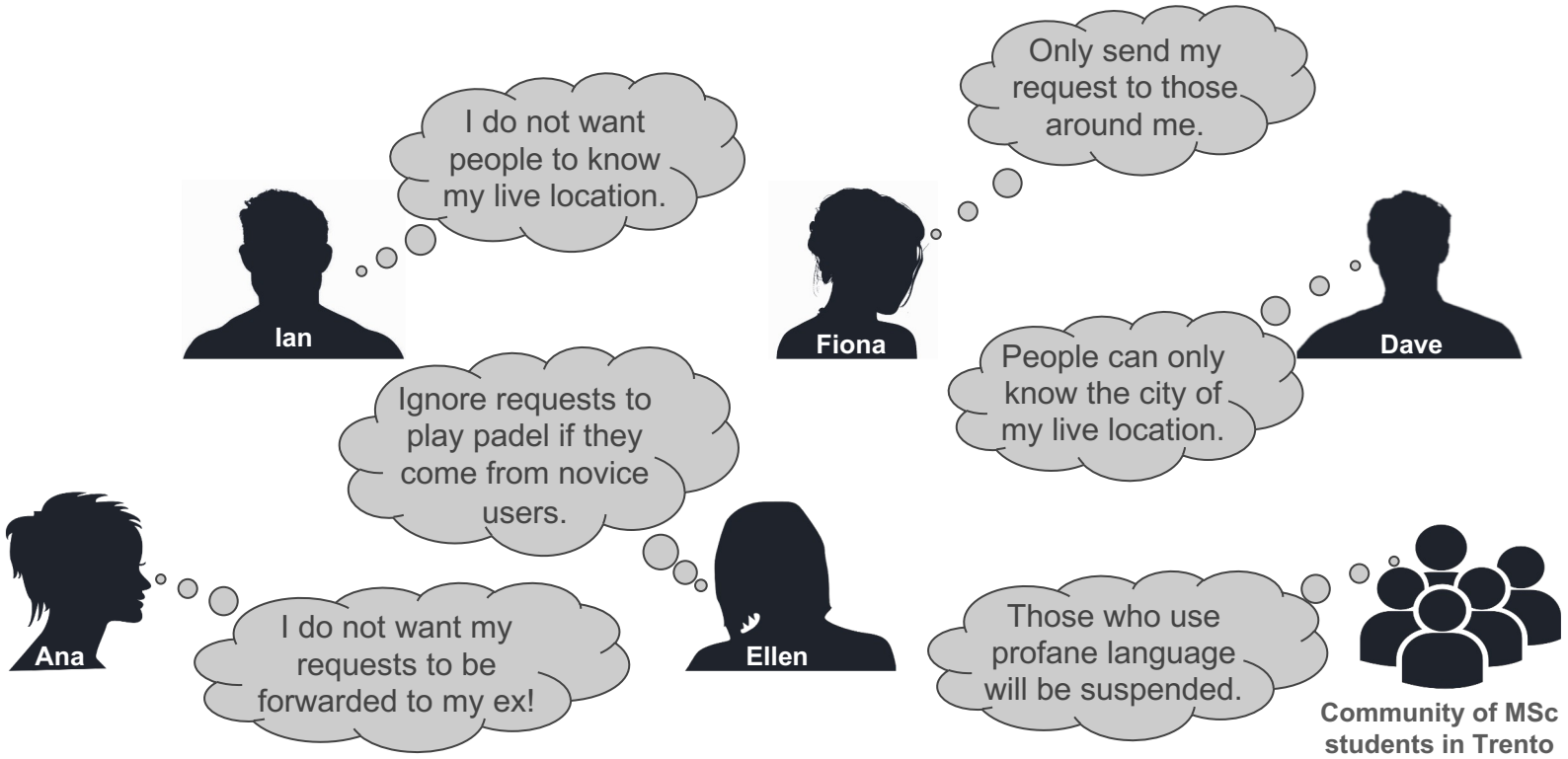
Moving from the internet of things to the internet of us:
~~Connecting people to support their everyday needs.~~

Concrete objectives:

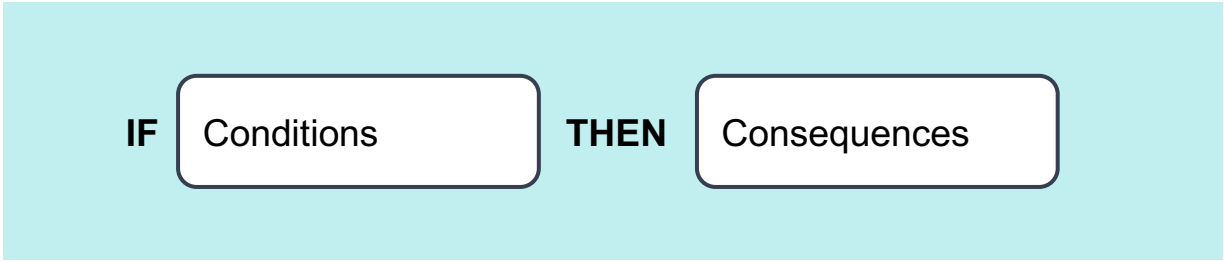
- **empowering users**, maintaining user control while ensuring basic requirements are not broken
- **connecting people**, leveraging diversity when matching profiles
- **aligning norm understanding**, ensuring users are aligned with respect to their understanding of the norms

Empowering users

User & Community Requirements



Declarative Approach for Norms




```
Norm                    ::=     IF Conditions THEN Consequences
Conditions      ::=     Condition   |
                                NOT Condition |
                Condition AND Conditions |
                Condition OR Conditions
Consequences    ::=     Consequence |
                Consequence AND Consequences
```

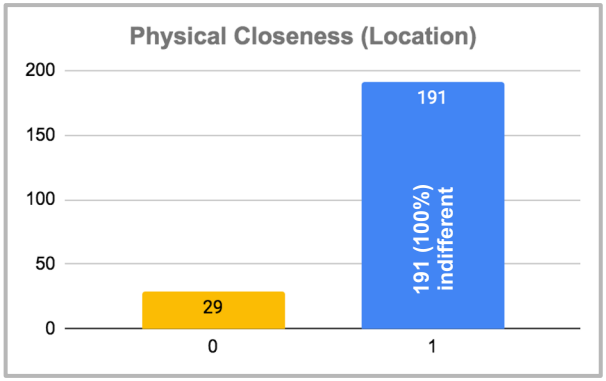
A declarative approach opens the door for dynamic norms!

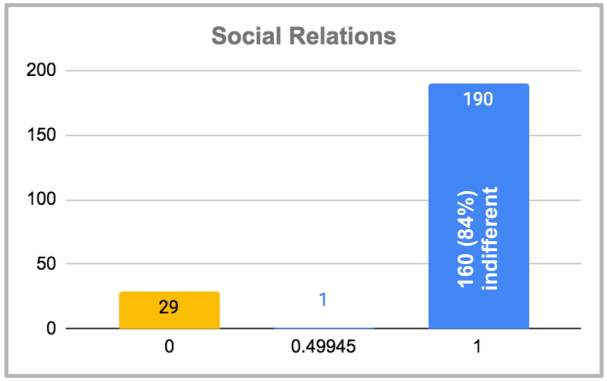
Connecting people, leveraging diversity

Norms: 1st Pilot

- People can choose whether they are looking for users that are **closeby or not**
- People can choose whether they are looking for users that are **socially close or not**
- People can choose whether they are looking for users with **similar / different / indifferent skills & interests**
- People can choose whether they are looking for users with **similar / different / indifferent beliefs & values**

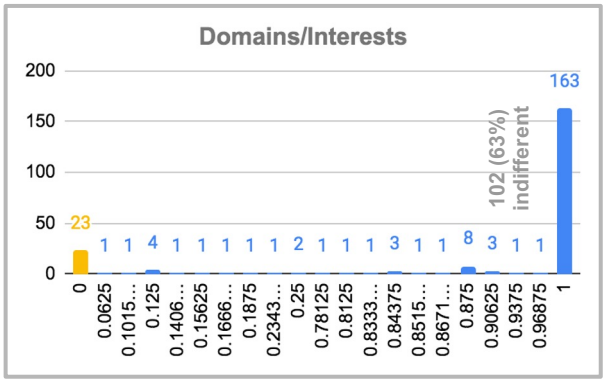
Results of 1st Pilot @AAU

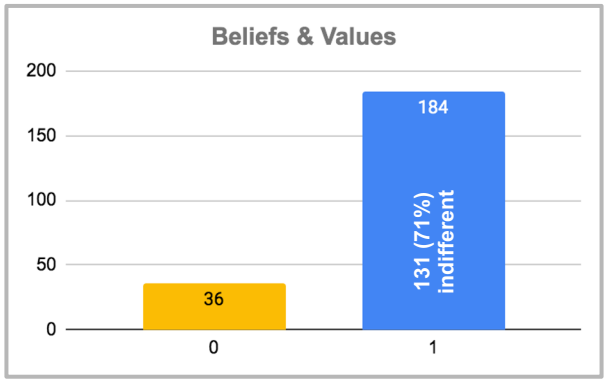


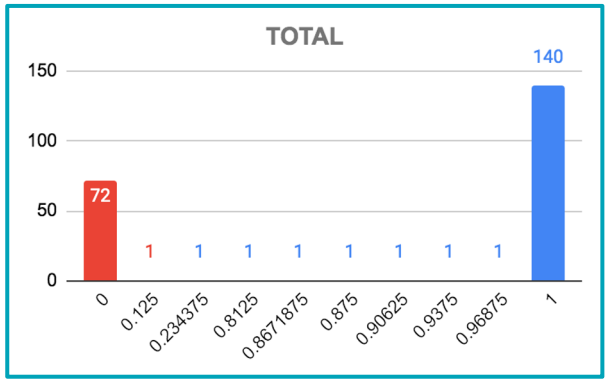


Users: 47
Tasks: 220

32.73% of tasks have a median of 0 w.r.t. the assessment of users asked







Results of 1st Pilot: user feedback

small communities

limited profile data

+

lots of constraints on matching profile

app selecting a large number of profiles

→

selected profiles **do not fulfil** many of the requirements

Leveraging diversity is challenged by small communities and scarce data.

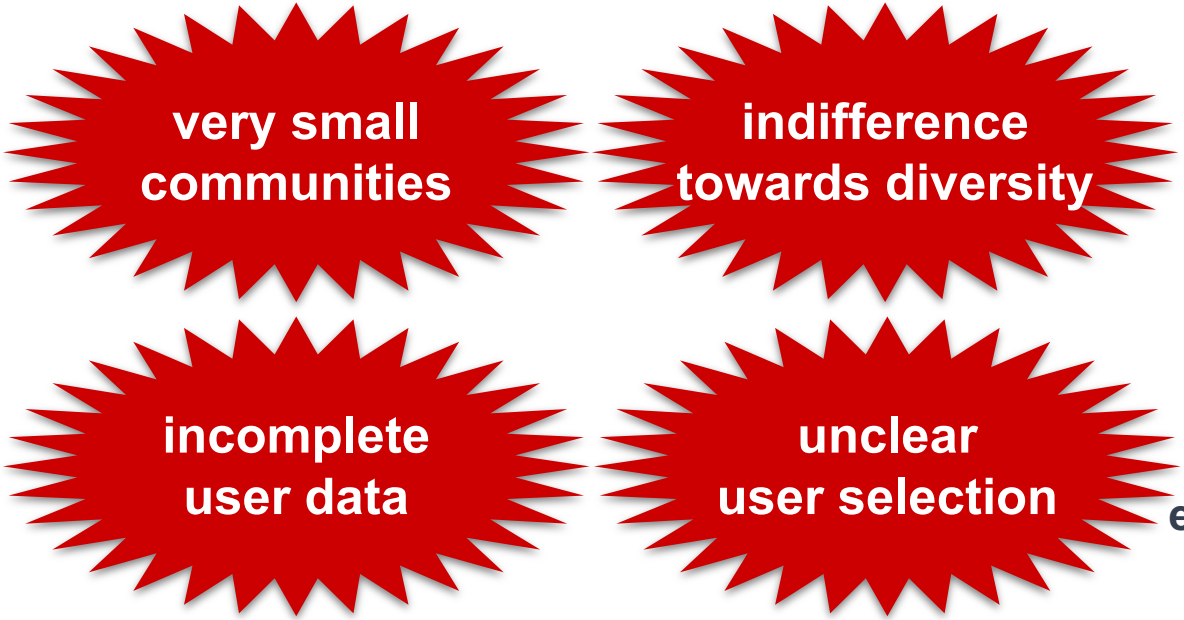
Improvements

1. motivate people to join

2. Mechanisms to tolerate incomplete data

3. reevaluate diversity norms

4. provide explanations at all stages

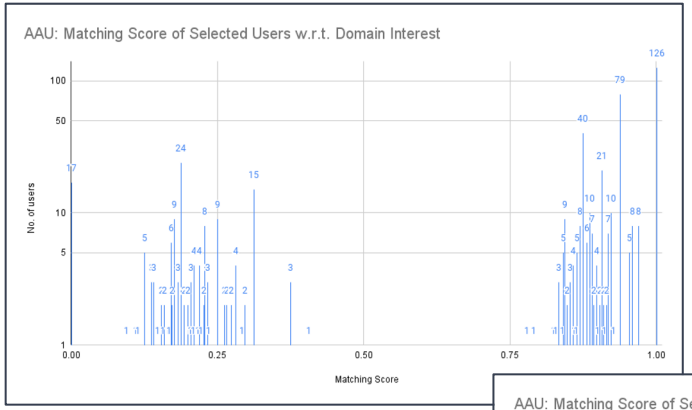


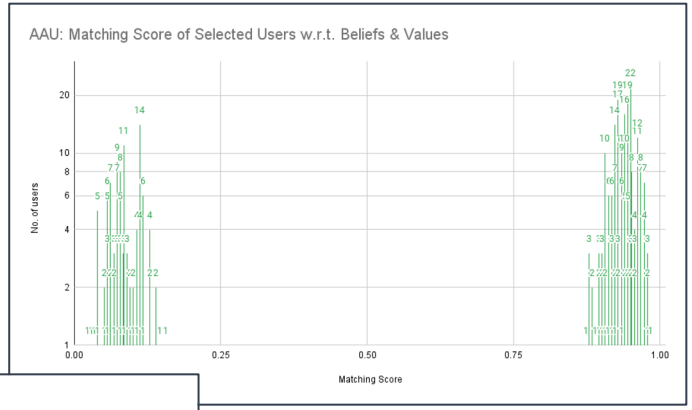
Norms: 2nd Pilot

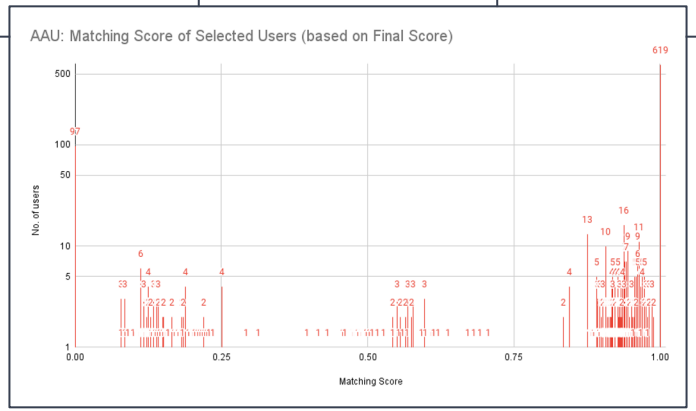
- People can choose whether they are looking for users that are **closeby or not**
- People can choose whether they are looking for users that are **socially close or not**
- People can choose whether they are looking for users with **similar / different / indifferent skills & interests**
- People can choose whether they are looking for users with **similar / different / indifferent beliefs & values**

The meaning of these statements now differ from one pilot site to another!

Results of 2nd Pilot @ AAU

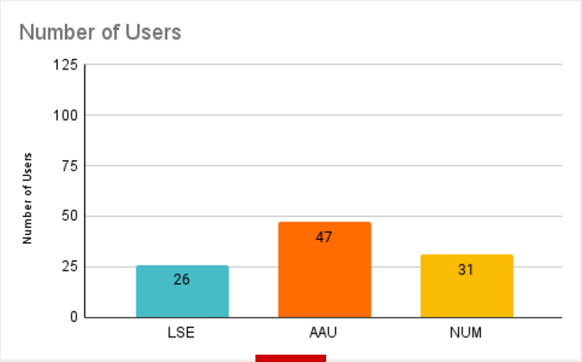


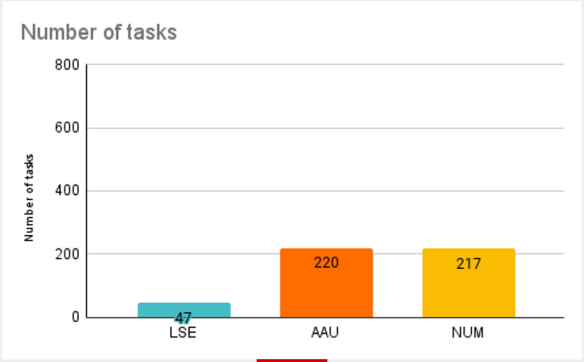




❶ Community Size & Dataset Size

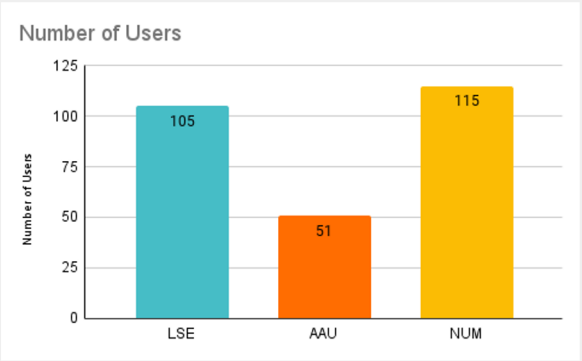
1st Pilot

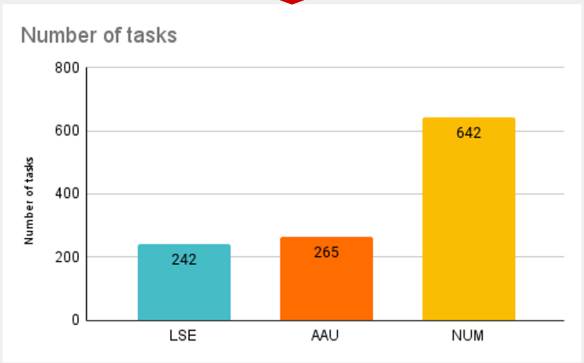




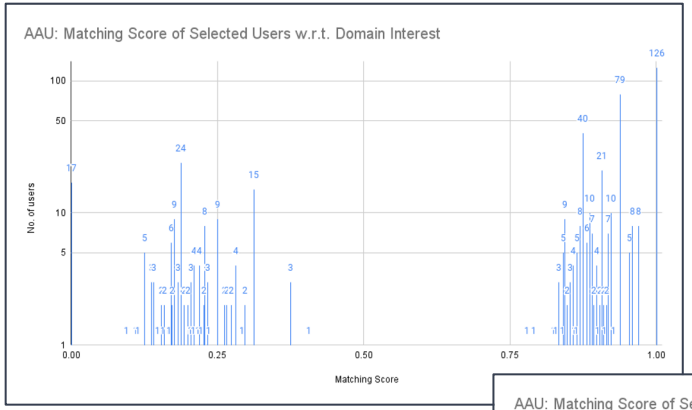
very small communities

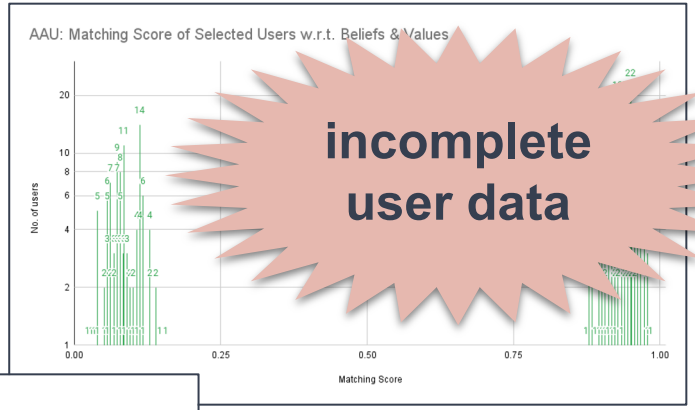
2nd Pilot



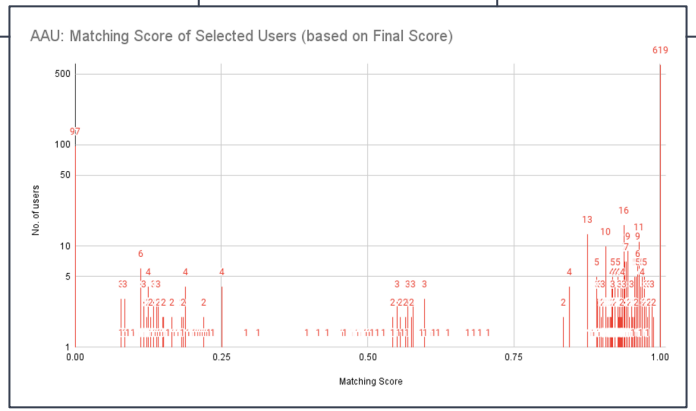


❷ Incomplete User Data

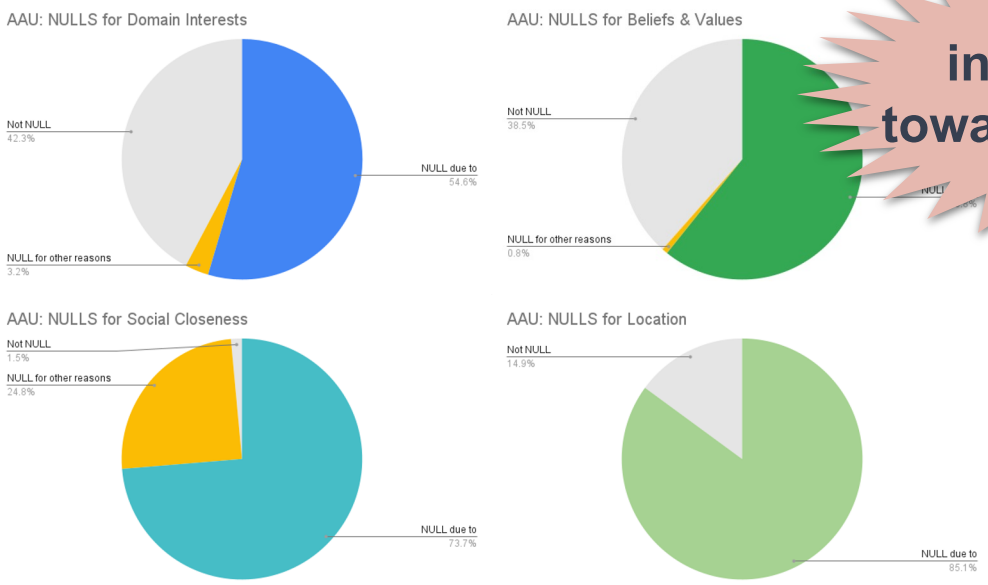




incomplete user data



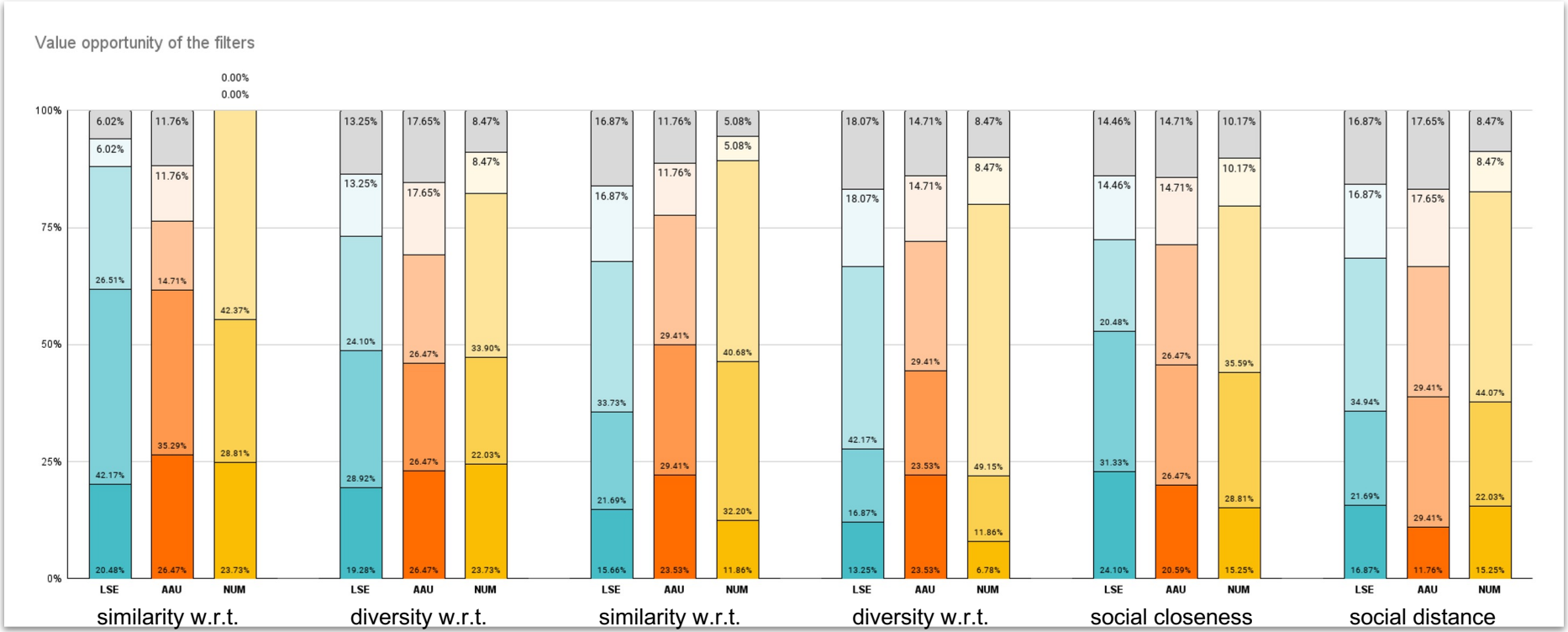
❸ Indifference towards Diversity



indifference towards diversity

But... we still have a relatively good amount of data!

❸ Indifference towards Diversity



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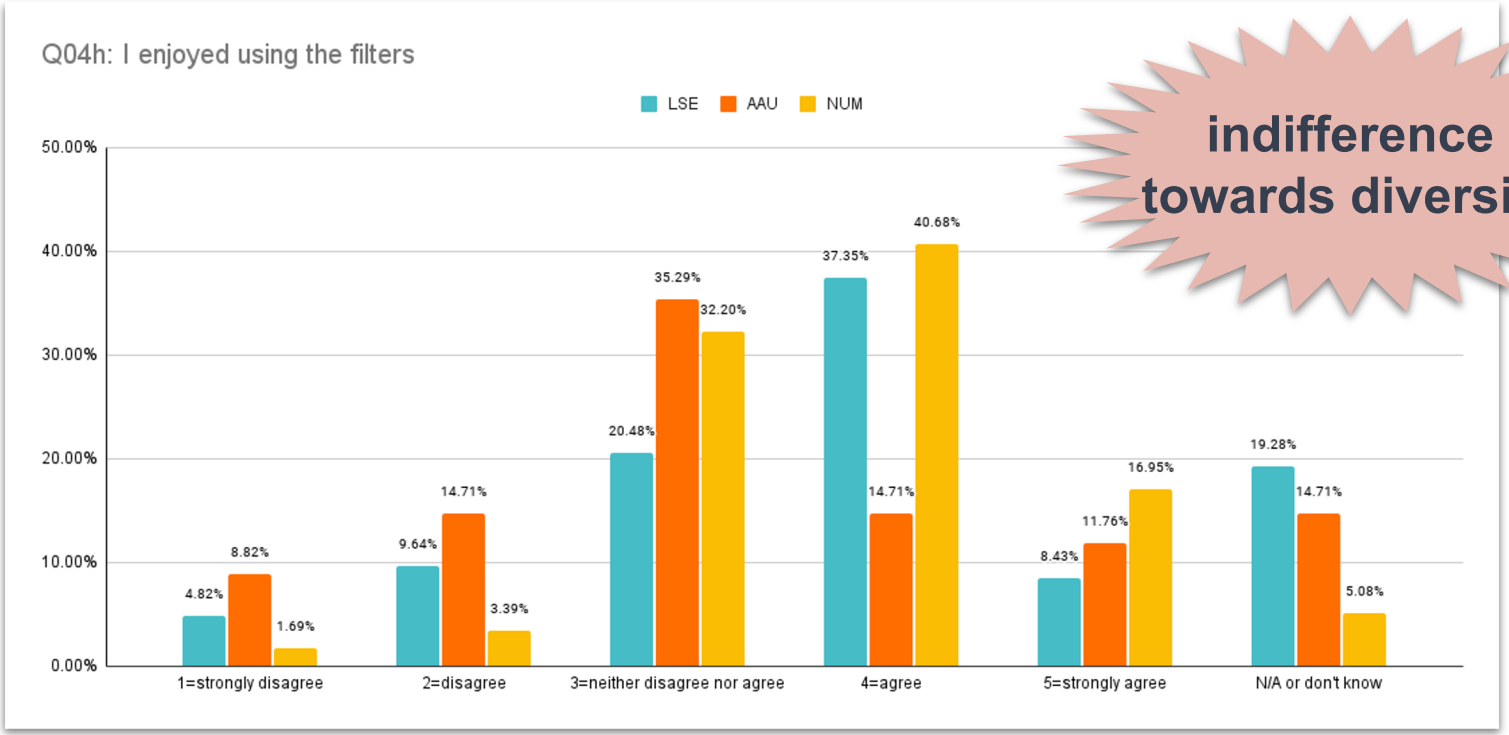
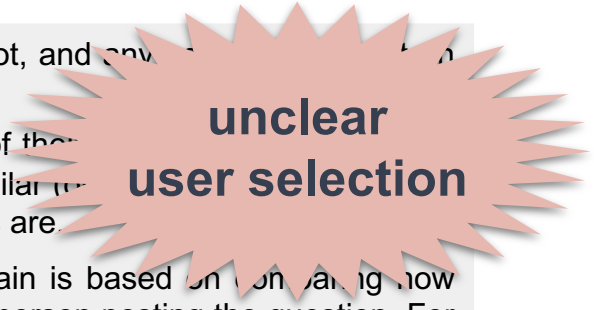


indifference towards diversity

❹ Unclear User Selection

Finding people with respect to physical proximity is not enabled in this pilot, and any [illegible] physical proximity is ignored by the system.

Finding people with respect to social proximity is based on the intensity of their [illegible] person posting the question. The stronger these interactions, the more similar (c[illegible] The weaker these interactions, the more different (or distant) the social ties are.

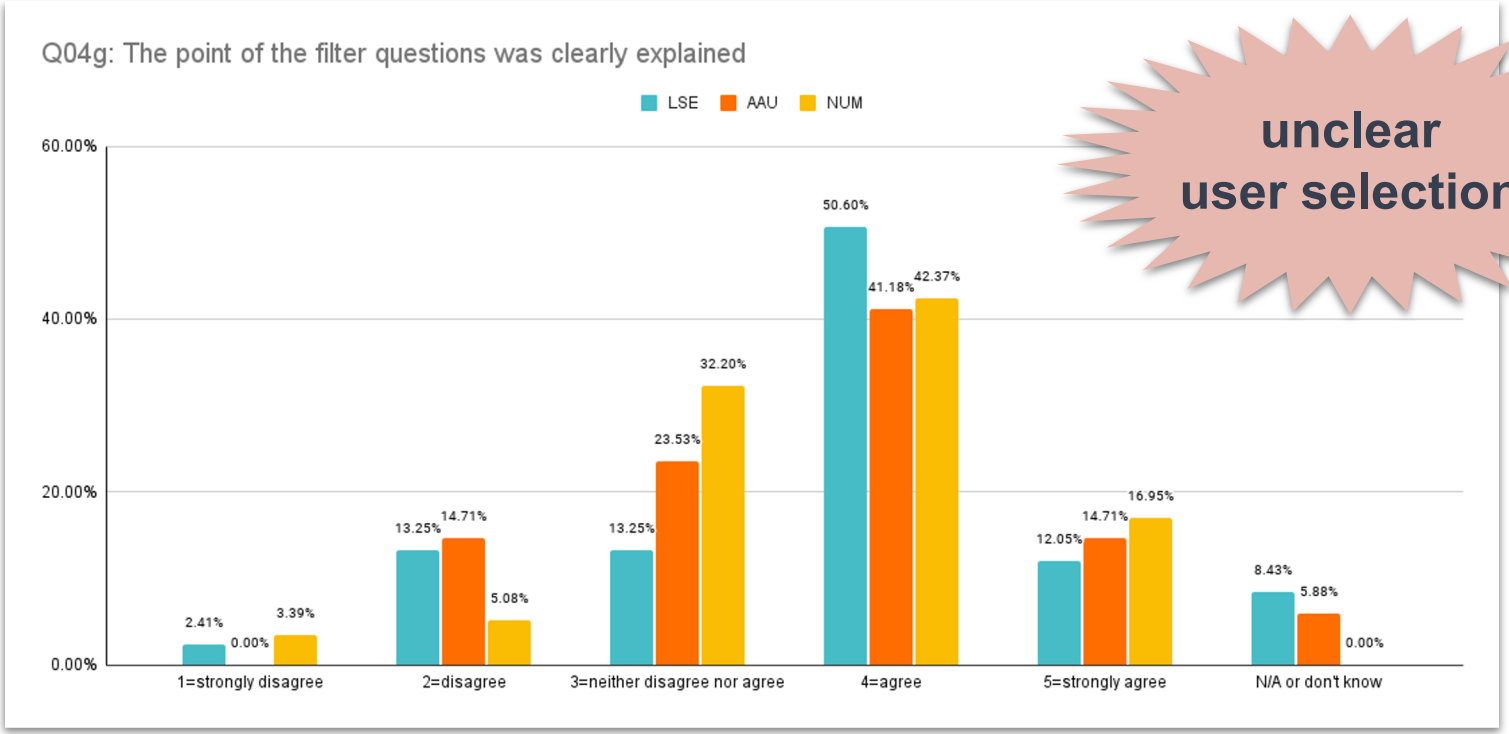


Finding people with similar/different profiles with respect to a given domain is based on [illegible] how close/far are people's experience levels in that domain with respect to the person posting the question. For example, the similarity of two profiles with respect to the physical activities/sports domain depends on how close are the experience levels of those profiles with respect to watching sports, doing individual sports, and doing team sports. These measures are based on information obtained from our initial questionnaire.

Finding people with similar/different profiles with respect to values is based on whether they share a similar value dimension or not with the person posting the question. The value dimensions are excitement, promotion, existence, suprapersonal, interactive, and normative; and these dimensions are assigned to users based on their answers to our initial questionnaire.

…

❹ Did the users understand the filters?



unclear user selection

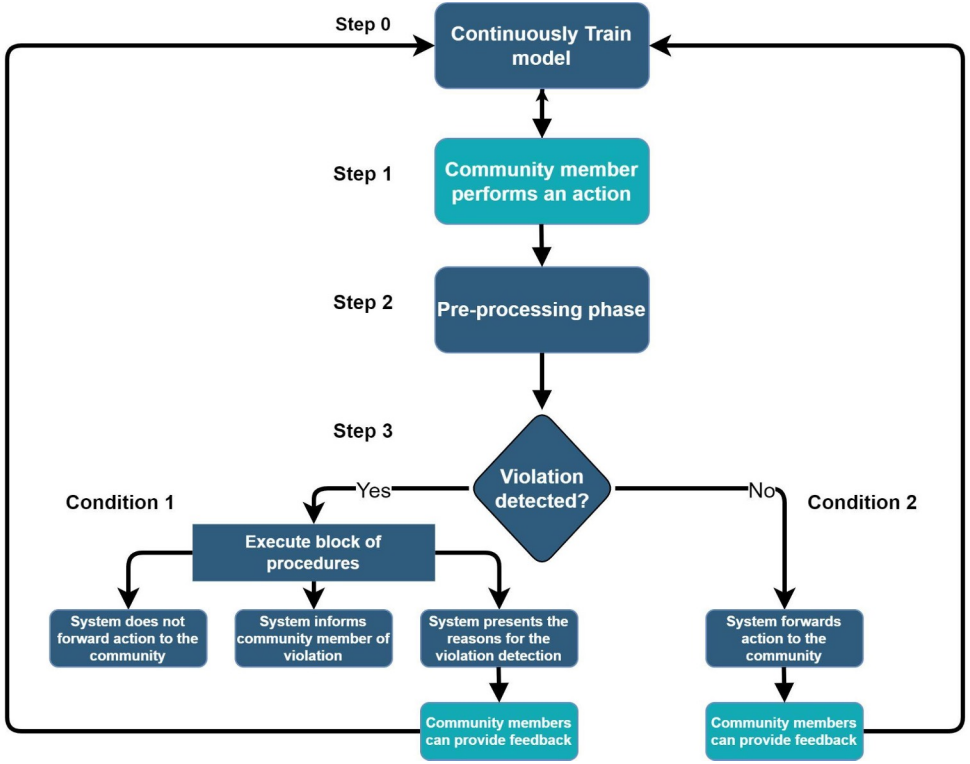
❹ Unclear User Selection

Group ranking	Description (use for explanations)	
Group 0	No requirements were specified.	Recall that there we… …w…t domains, value… Neverthel… diversity of s…
Group 1	**All primary requirements were fulfilled** and no diversity dimension requirement was broken	This user fulfils … …ng for users, we tried to … …ty of selected users.
Group 2	**All primary requirements were fulfilled** and exactly 1 diversity dimension requirement was broken	This user fulfils the 'X', but not all of the other requirements. To find some answers, we had to relax some of the other requirements. We also tried to increase the gender diversity of selected users.
Group 3	**All primary requirements were fulfilled** and exactly 2 diversity dimension requirements were broken	
Group 4	**All primary requirements were fulfilled** and all other specified diversity dimension requirements were broken.	
Group 5	**One out of two specified primary requirement was not fulfilled** and no diversity dimension requirement was broken	This user does not fulfil the 'X'. To find some answers, we had to relax this requirement. We also tried to increase the gender diversity of selected users.
…	…	

unclear user selection

Aligning norm understanding

Learning from user feedback



Closing remarks

Conclusions

1. Declarative approach is useful for dynamic norms.
2. It is easier to leverage diversity in larger communities.
3. More careful analysis is needed on understanding which diversity dimensions are relevant in what context.
4. It is not easy to explain to people the meaning of complex system behaviour.
5. It is not easy to predict which norm, or norm interpretation, is good for a given community.

Future Work

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2. It is easier to leverage diversity in larger communities.
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Future Work

❺ It is not easy to predict which norm, or norm interpretation, is good for a given community.

Learn from **interaction data** and **user feedback** what are the best norms (or norm parameters) for a community?

For example,

❶ What number of users to send a question to? (finding the **norm parameter** that best satisfies the requirement of not bothering users, yet getting good results)

❷ Should a **filter (norm) be dropped** in a community if it is not useful?

❸ Does one **implementation / understanding of a norm** (e.g. social closeness) result in better interactions/user satisfaction than another?

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Website
www.internetofus.eu

Email
info@internetofus.eu

Twitter
@WeNetProject

WeNet project is funded by the EU's Horizon2020 programme under Grant Agreement number 823783.

WENET
INTERNET OF US

Nardine Osman
nardine@iiia.csic.es