

Ethical Risks, Concerns, and Practices of Affective Computing

A Thematic Analysis

Open Universiteit

Deniz Iren, Ediz Yildirim, Krist Shingjergji

deniz.iren@ou.nl



[download](#)

1. Introduction

- AI is progressing fast, raising concerns
- Ethical safeguards are needed
- Rules and regulations are being prepared [1]
- Affective computing is particularly sensitive
- Affective computing community has already taken action to ensure ethical practice [2]
- This study aims at investigating the ethical considerations of our community

2. Affective Computing Typology

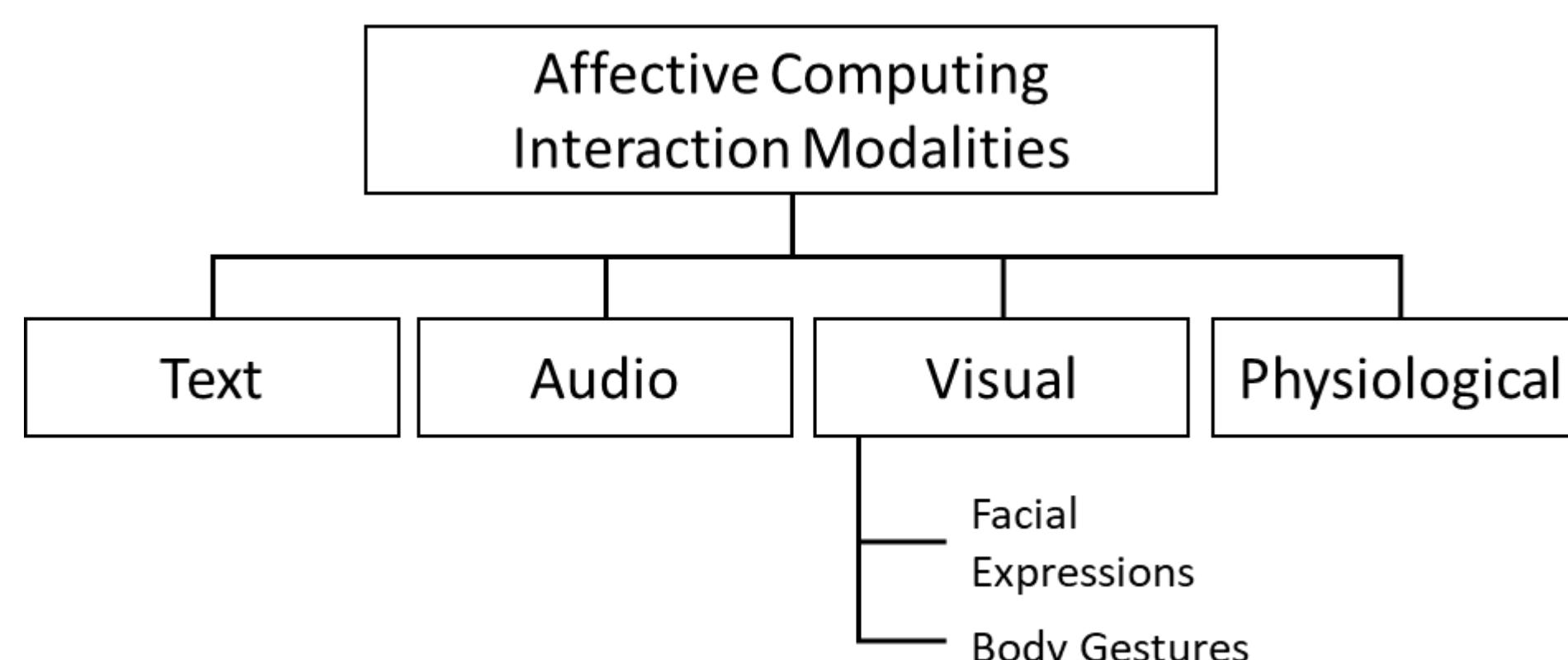


Figure 1. Typology of affective computing interaction modalities [3]

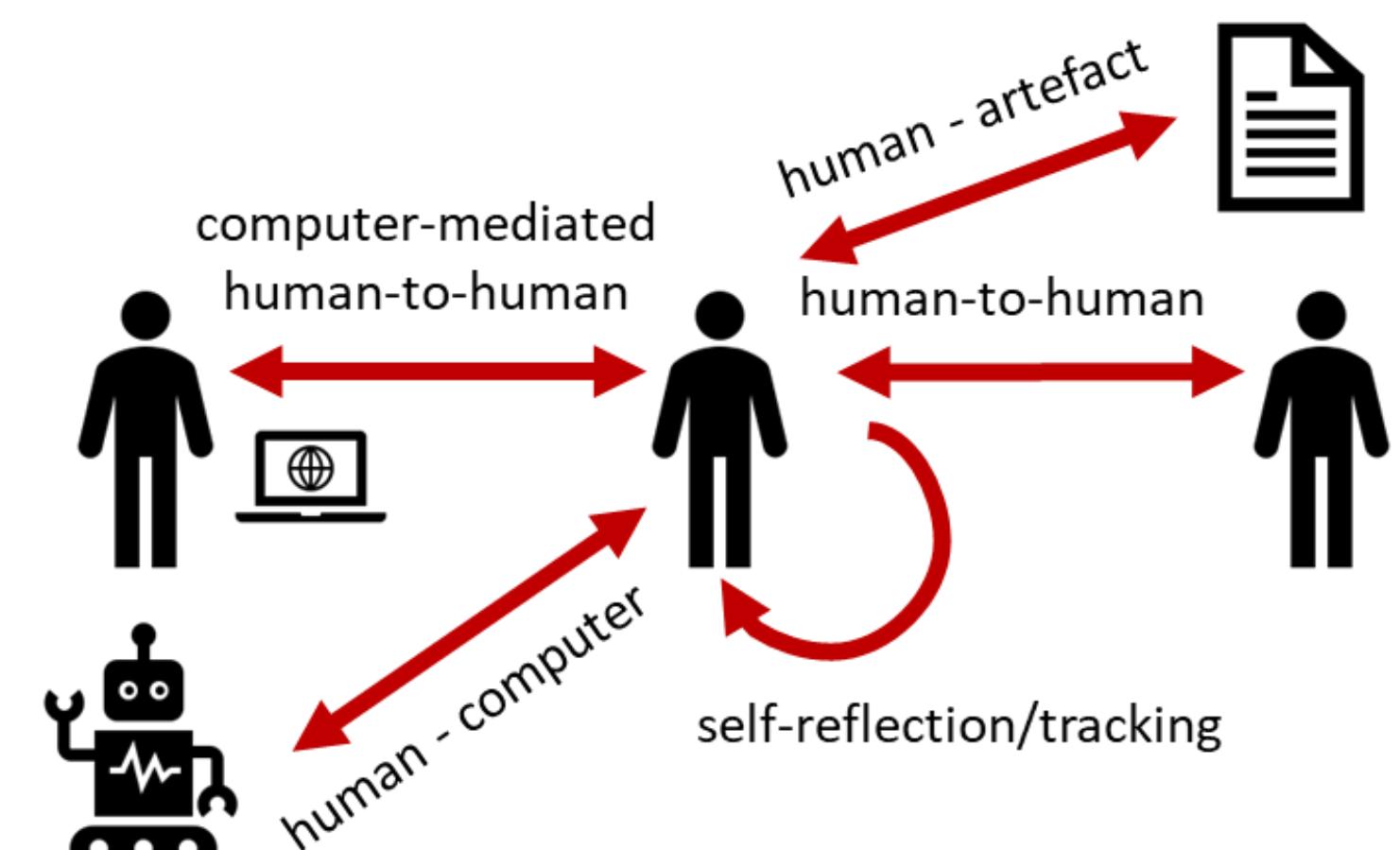


Figure 2. Typology of communication channels enhanced by affective computing

3. Research Questions

RQ1: What are the ethical risks and concerns reported by affective computing researchers?

RQ2: What are approaches proposed by affective computing researchers to mitigate these risks?

RQ3: What is the potential impact of the regulations (e.g., The AI Act) on different types and applications of affective computing?

- Data:** Ethical impact statements, N=70
- Goal:** To identify reported limitations, risks, and mitigation strategies

4. Research Method

- Method:** Thematic analysis
- Code groups:** *study-related, data-related, application-related*

5. Descriptives

Categories	STUDY	DATA	APPLICATION
Themes	<ul style="list-style-type: none">Human subjectsStudy designEnvironmental impact	<ul style="list-style-type: none">Data qualityNature of dataOpen data	<ul style="list-style-type: none">ApplicationExamine and report environmental impactTrain small modelsUse pretrained modelsAvoid over-personalization of models

Figure 5. Categories and themes identified in thematic analysis

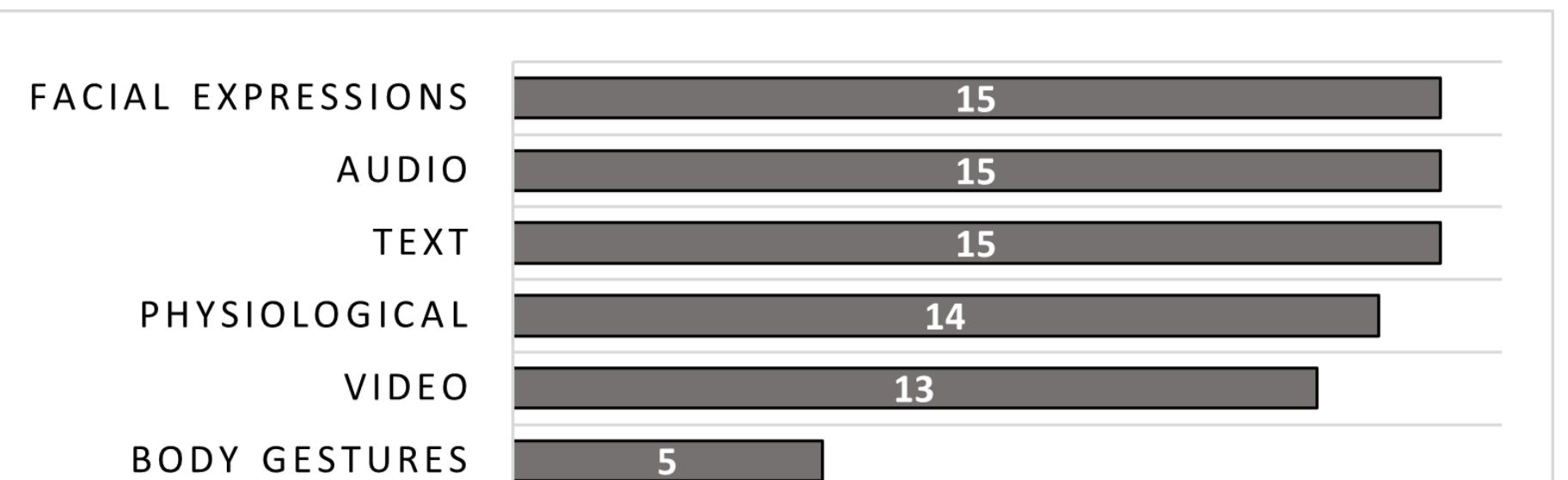


Figure 3. Number of papers addressing different interaction modalities

6. Main Findings

THEMES	LIMITATIONS	RISKS	MITIGATION
STUDY	HUMAN SUBJECTS	<ul style="list-style-type: none">Participant selection and compensation (3)	<ul style="list-style-type: none">Limited oversight (2)Harm to participants (2)
	STUDY DESIGN	<ul style="list-style-type: none">Context-specific (2)	<ul style="list-style-type: none">Results are not generalizable (6)Reduced construct validity (2)
	ENVIRONMENTAL IMPACT		<ul style="list-style-type: none">Examine and report environmental impact (2)Train small models (1)Use pretrained models (1)Avoid over-personalization of models (1)
DATA	DATA QUALITY	<ul style="list-style-type: none">Small sample size (10)Sample is not representative (4)<ul style="list-style-type: none">Demographics (4)Limited set of emotions (1)Data imbalance (2)	<ul style="list-style-type: none">Results are not generalizable (6)Discrimination (3)Biases (24) [4]Reduced accuracy (3)
	NATURE OF DATA		<ul style="list-style-type: none">Sensitive data (5)<ul style="list-style-type: none">Healthcare/mentalOffensive contentPrivate data (14)Personally identifiable data (1)Unauthorized access to the data (2)Unclear IP rights and licensing (2)
	OPEN DATA	<ul style="list-style-type: none">Private/unavailable research data (2)	<ul style="list-style-type: none">Reproducibility is hinderedMisuse of data
APPLICATION	APPLICATION	<ul style="list-style-type: none">Limited stakeholder involvement (2)Critical domains and application fields<ul style="list-style-type: none">Healthcare (20)Education (4)Social services (9)Law enforcement and border control (0)Workplace (2)	<ul style="list-style-type: none">Harmful applications (18)<ul style="list-style-type: none">SurveillanceDeceptionManipulationRestrict autonomySocietal adverse impact (2)<ul style="list-style-type: none">Limit fundamental rightsControversial subjectsFailure consequences (1)

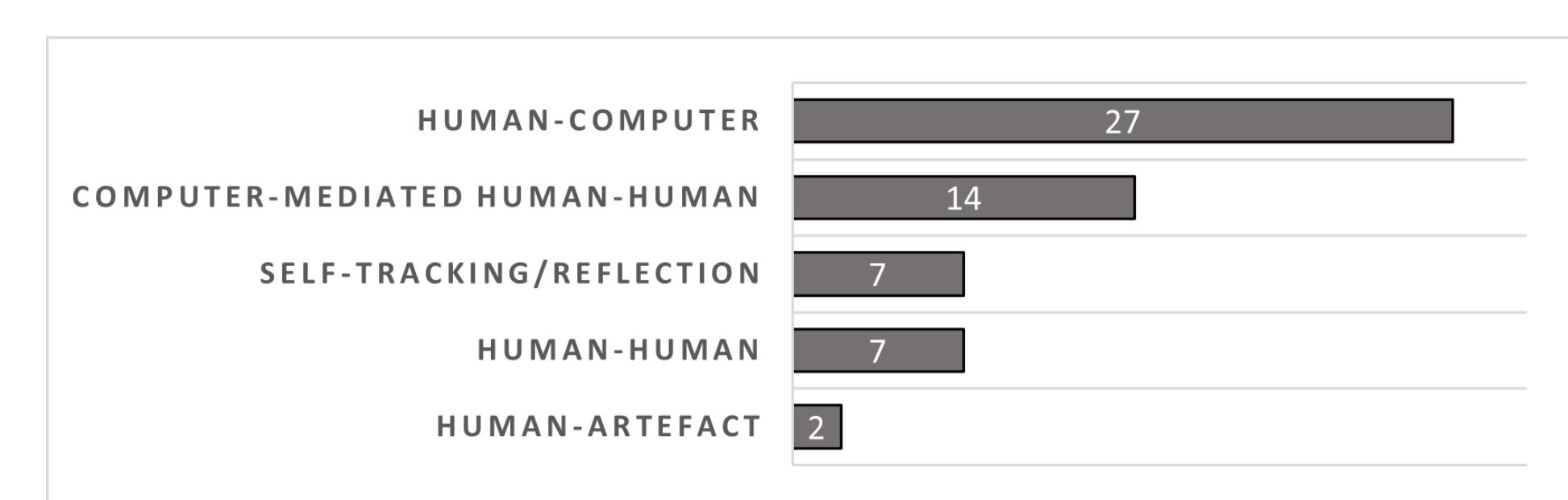


Figure 4. Number of studies addressing different types of communication channels

7. Conclusion

- Affective computing community has taken important steps to highlight ethical research.
- However, our findings indicate several gaps and non-standard ethical practices.
- We could benefit from more systematic guidelines for ethical research practice and reporting.

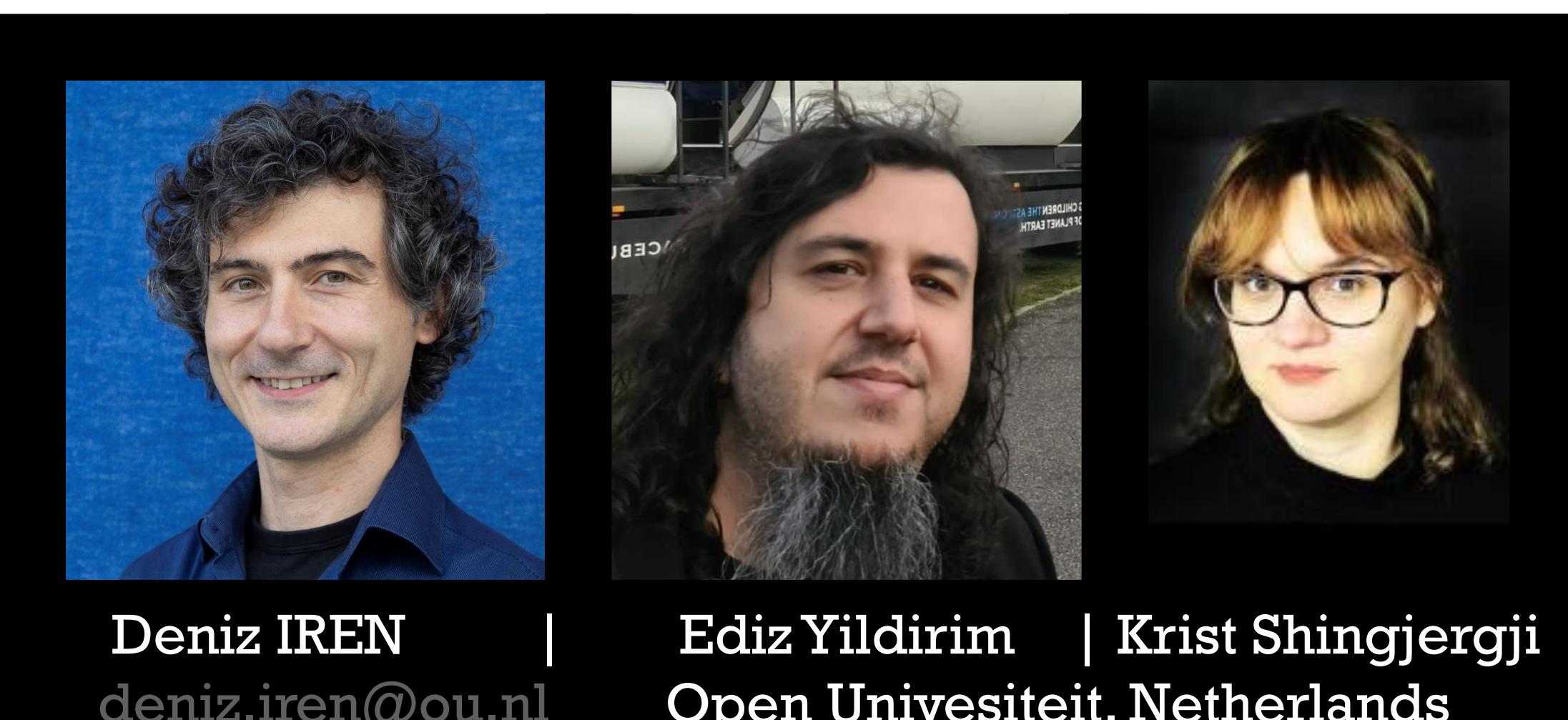
Limitations

- This thematic analysis focuses only on the ethical impact statement sections, and not on the other sections of the paper.

Future work

- We plan to prepare reports and open a communication dialogue between affective computing community and policymakers.
- We will extend our work to cover the leading journals of affective computing (e.g., IEEE Transactions of Affective Computing)

Authors



Deniz IREN
deniz.iren@ou.nl

Ediz Yildirim | Krist Shingjergji
Open Universiteit, Netherlands

References

[1] Artificial intelligence act, <https://eur-lex.europa.eu/legalcontent/EN/TXT/HTML/?uri=CELEX:52021PC0206>, accessed 18-June-2023, 2021.
[2] D. Ong, J. Hernandez, R. Picard, et al., Writing an ethical impact statement for acii2023, <https://acii-conf.net/2023/wp-content/uploads/2023/03/instructions-ethicalstatement.pdf>, accessed 18-June-2023, 2023.
[3] Y. Wang, W. Song, W. Tao, et al., "A systematic review on affective computing: Emotion models, databases, and recent advances," *Information Fusion*, 2022.
[4] B. Aysolmaz, D. Iren, and N. Dau, "Preventing algorithmic bias in the development of algorithmic decision-making systems: A delphi study," 2020.