

Ethical Risks, Concerns, and Practices of Affective Computing

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A Thematic Analysis

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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

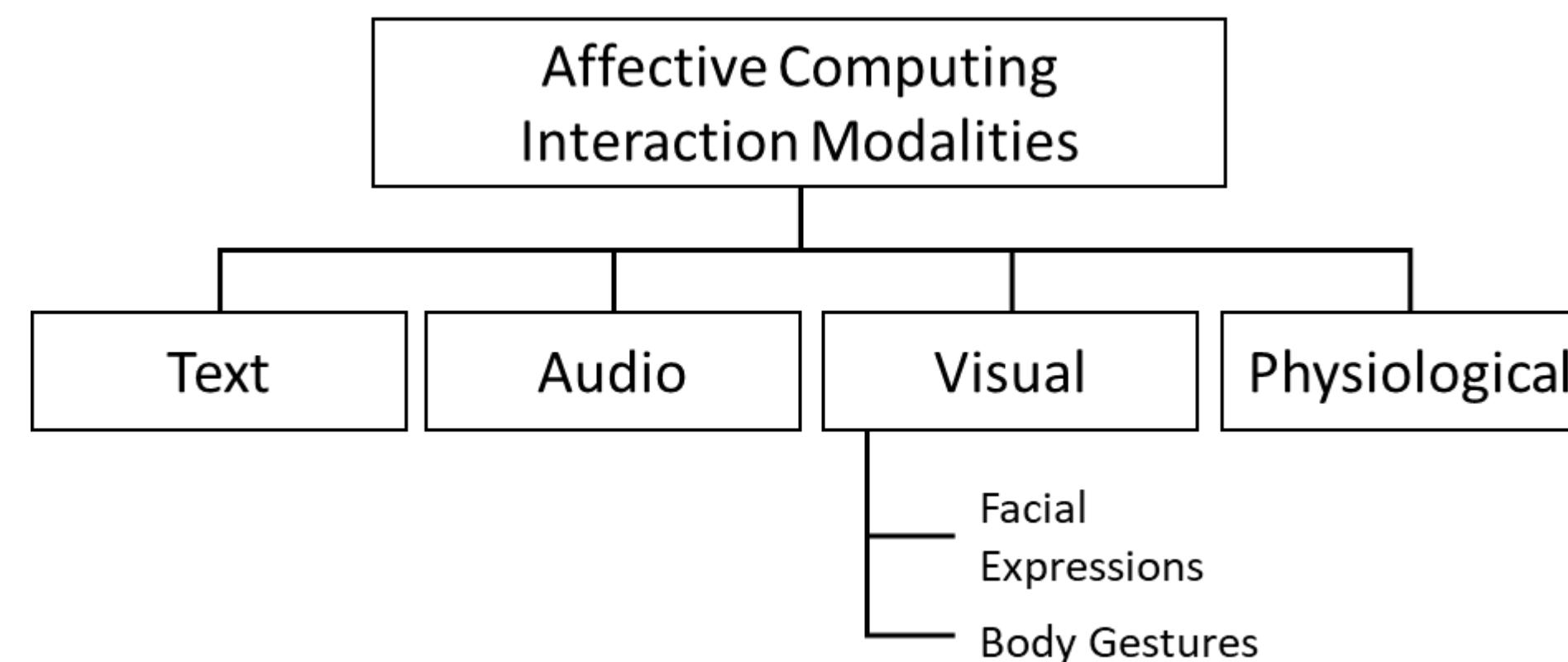


Figure 1. Typology of affective computing interaction modalities [3]

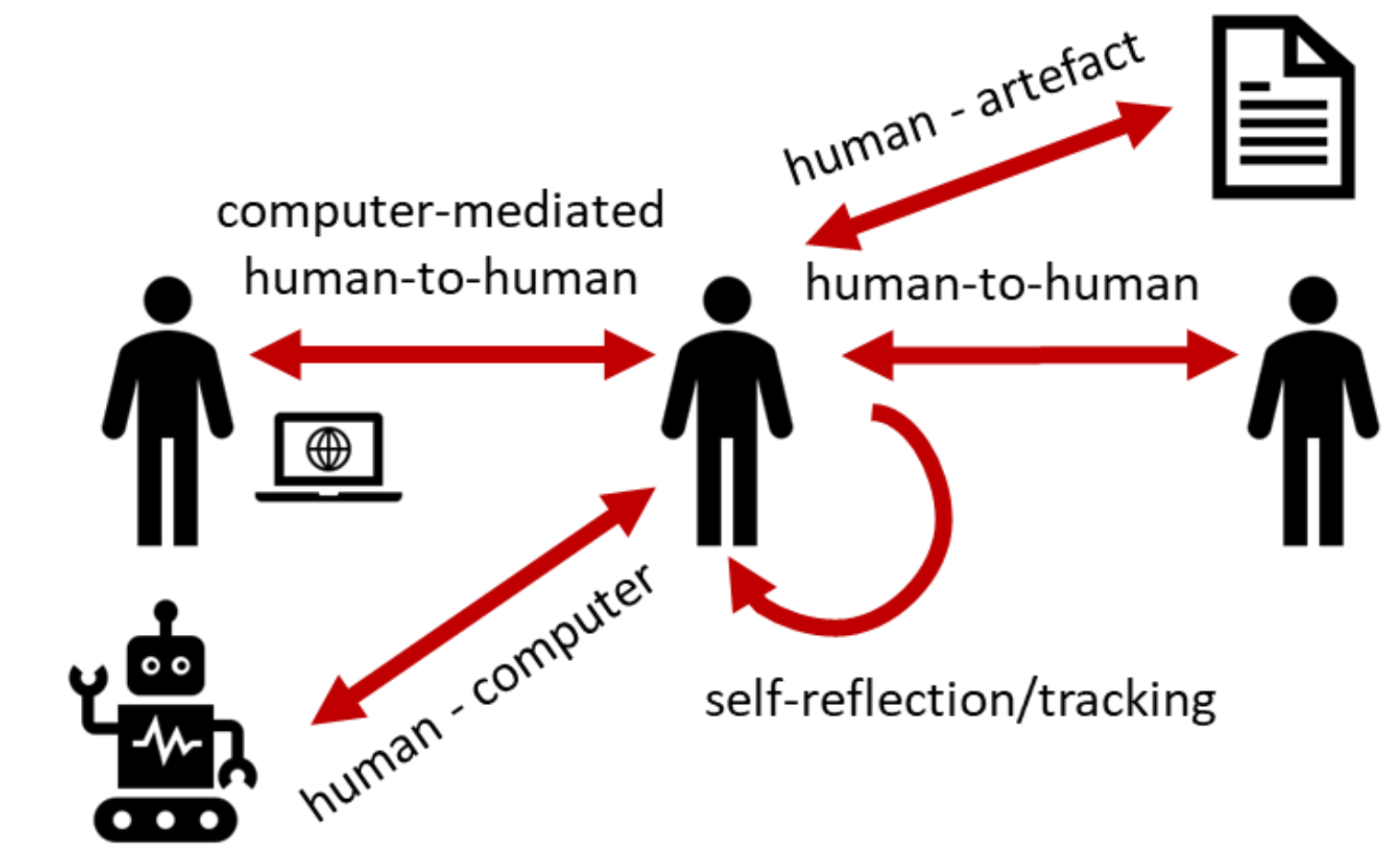


Figure 2. Typology of communication channels enhanced by affective computing

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?

4. Research Method

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

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

5. Descriptives

Categories	STUDY	DATA	APPLICATION
Themes	• Human subjects • Study design • Environmental impact	• Data quality • Nature of data • Open data	• Application

Figure 5. Categories and themes identified in thematic analysis

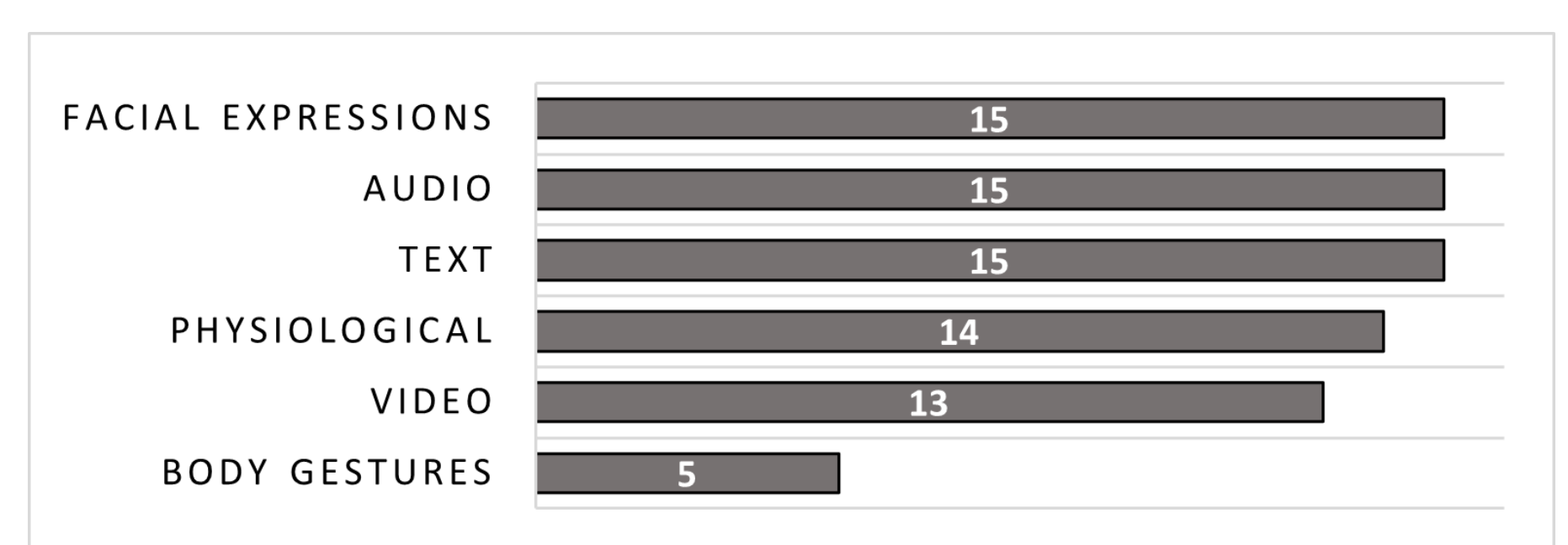


Figure 3. Number of papers addressing different interaction modalities

6. Main Findings

THEMES	CODES		
	LIMITATIONS	RISKS	MITIGATION
STUDY	HUMAN SUBJECTS ↔ Participant selection and compensation (3)	↔ Limited oversight (2) ↔ Harm to participants (2)	↔ Involve IRB(26) ↔ Apply informed consent (22) ↔ Participants can drop-out at will (4) ↔ Transparent reporting (2)
	STUDY DESIGN ↔ Context-specific (2)	↔ Results are not generalizable (6) ↔ Reduced construct validity (2)	↔ Improve the study (5) → Conduct more research (4) → Improve the performance (3)
	ENVIRONMENTAL IMPACT	↔ Environmental Impact (5)	↔ Examine and report environmental impact (2) ↔ Train small models (1) ↔ Use pretrained models (1) ↔ Avoid over-personalization of models (1)
DATA	DATA QUALITY ↔ Small sample size (10) ↔ Sample is not representative (4) → Demographics (4) → Limited set of emotions (1) ↔ Data imbalance (2)	↔ Results are not generalizable (6) ↔ Discrimination (3) ↔ Biases (24) [4] ↔ Reduced accuracy (3)	↔ Improve the data (10) → Collect more data (7) → Collect more diverse data (4) → Apply sampling strategies (2) → Balance data (3) → Examine the biases (4) → Use multiple datasets (2)
	NATURE OF DATA	↔ Sensitive data (5) → Healthcare/mental → Offensive content ↔ Private data (14) ↔ Personally identifiable data (1) ↔ Unauthorized access to the data (2) ↔ Unclear IP rights and licensing (2)	↔ Anonymization/De-identification (22) ↔ Setup data protection policy (2) ↔ Establish data protection measures (2)
	OPEN DATA ↔ Private/unavailable research data (2)	↔ Reproducibility is hindered ↔ Misuse of data	↔ Make research data available (5) ↔ License the published datasets (2) ↔ Establish EULA for published datasets (2) ↔ Identify and address failure consequences (1) ↔ Provide transparent information to user (2)
APPLICATION	↔ Limited stakeholder involvement (2) ↔ Critical domains and application fields → Healthcare (20) → Education (4) → Social services (9) → Law enforcement and border control (0) → Workplace (2)	↔ Harmful applications (18) → Surveillance → Deception → Manipulation → Restrict autonomy ↔ Societal adverse impact (2) → Limit fundamental rights → Controversial subjects ↔ Failure consequences (1)	

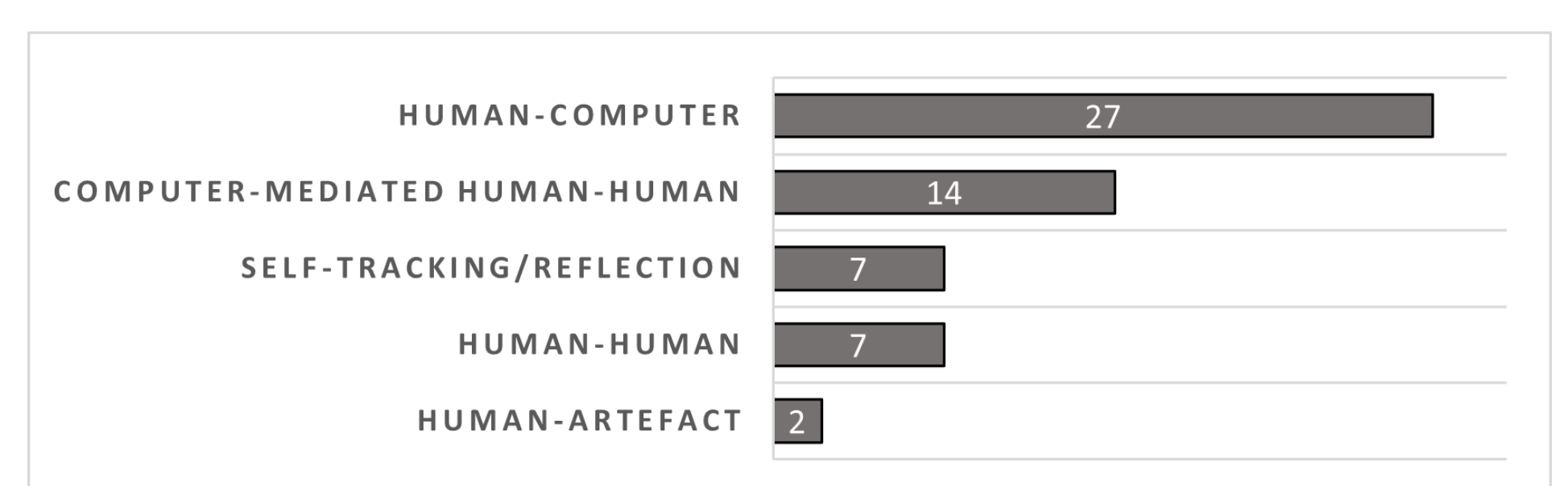


Figure 4. Number of studies addressing different types of communication channels

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)

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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.