Principlism Guided Responsible Data Curation

Sony AI

Jerone T. A. Andrews
Sony AI, Tokyo

Dora Zhao
Sony AI, New York

William Thong
Sony AI, Zurich

Apostolos Modas
Sony AI, Zurich

Orestis Papakyriakopoulos
Sony AI, Zurich

Alice Xiang
Sony AI, Seattle

1 Motivation

Human-Centric Computer Vision (HCCV)

Segmentation | Verification | Localization | Detection | Pose Estimation

Action Recognition | Reconstruction | Editing | Synthesis

Problematic Data Curation Practices

Privacy

Bias

Dataset Retractions | Spurious Correlations | Unfair Models

Nonconsensual Data Subjects Regarded as Free Raw Material

Lack Ground-Truth Metadata Required for Fairness and Robustness Evaluations

Efforts Addressing Privacy and Bias Issues

Dataset Documentation | Ethical / Societal Impact Statements | Dataset Audits

General-Purpose AI Guidelines | Bias Detection Tools | Privacy Methodologies

Shortcomings of Existing Efforts

Post Hoc Reflective | Lack Cognizant of Privacy + Data Protection Laws

Lack Guidance | Lack Justification | Lack Domain and Task Specificity

2 Contributions

Provide an Ante Hoc Reflective Perspective Guided by Principlism

Autonomy | Beneficence | Nonmaleficence | Justice

Offer Ethical Considerations + Practical Recommendations

Purpose | Consent and Privacy | Diversity

Develop a Domain-Specific Resource for Operationalizing Fairness

3 Purpose

Ethical Considerations

Fairness-Unaware Datasets Are Inadequate for Measuring Fairness

Fairness-Aware Datasets Are Incompatible With Common HCCV Tasks

Practical Recommendations

Refrain from Repurposing Datasets | Create Purpose Statements Prior to Data Collection

4 Consent and Privacy

Ethical Considerations

Outside the Scope of Human-Subjects Research

Exploit Creative Commons “Loophole”

Subjects Are Not Able to Revoke Consent

Contain Private Information in the Image and Metadata

Practical Recommendations

Obtain Voluntary Informed Consent from Data Subjects

Collect Country of Residence Information

Adopt Appropriate Consent Revocation Mechanisms

Redact Privacy-Leaking Image Regions and Metadata

5 Diversity

Ethical Considerations

Representational + Historical Biases | Erasure of Nonstereotypical Individuals

Confused Taxonomies | Own-Anchor Biases | Phenotypic Attributes

Post Hoc Rationalization of the Use of Physiological Markers

Digital Divide + Accessibility | Instruments + Environments

Annotator Positionality | Recruitment + Compensation

Practical Recommendations

Obtain Self-Reported Annotations

Provide Open-Ended Response Options

Acknowledge the Mutability + Multiplicity of Identity

Collect Age, Pronouns, and Ancestry

Collect Aggregate Data for Commonly Ignored Groups

Collect Phenotypic + Neutral Performative Features

Record Environment + Instrument Information

Recontextualize Annotators as Contributors

Fair Treatment + Compensation for Contributors