



CS29-1 Privacy-aware Online Proctoring

Possible Innovation Points:
 > speed up
 > improve accuracy
 > sound UI

Privacy Preserving

dataset

1. Definition of Privacy

- face
- background

2. Methods to Protect Privacy

face

- add something on face -- mask/sunglasses/emoji
 - face detection
 - facial landmarks detection
- blur & anonymize face
 - face detection
 - blur level
- face outline
 - face detection
 - facial landmarks detection
- face swap
 - face detection
 - facial landmarks detection
 - motion capture
- ...

background

3. Influence on Cheating Detection

> the method to test accuracy
 > accuracy
 > time consuming

dataset

Cheating Detection

1. Definition of Cheating

- surrogate exam-taker
 - before entering the exam
 - face recognition + ID authentication
 - personal information authentication
 - during the exam
 - real-time face recognition
- face
 - eyes
 - glance left and right
 - mouth
 - frequent opening and closing
- head
 - turn one's head (180 degrees)
 - bow one's head
 - raise one's head
 - ...
- body action
 - turn the body
 - stand up
 - nobody
- audio
 - voice
 - ...
- screen
- ...

> eye movement recognition
 > motion capture
 > sound detection

2. Information Required for Cheating Detection

3. Methods to Detect Cheating

- real-time proctoring --- base on proctor's subjective judgement
- the system automatically identifies and alarms when possible cheating behavior occurs --> the system will send related information to the proctor --> proctor decides whether cheat or not according to the sent material

Information Storage & Processing

1. Storage

methods

- original images/videos/audio
- compressed images/videos/audio
- processed images/videos/audio
- hash value
- ...

revert

location

- cloud
- server
- not store

resources

- user's CPU
- server
- user's CPU + server

time consuming

User Interface

1. Interface Design

2. Fuctional Realization

- database
- APIs