Supplemental Document

for the "OU-ISIR Gait Database, Large Population Dataset"

Last modified: 2013 1/15

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H. Iwama, M. Okumura, Y. Makihara, Y. Yagi, "The OU-ISIR Gait Database Comprising the Large Population Dataset and Performance Evaluation of Gait Recognition", TIFS, Vol.7, No.5, 2012

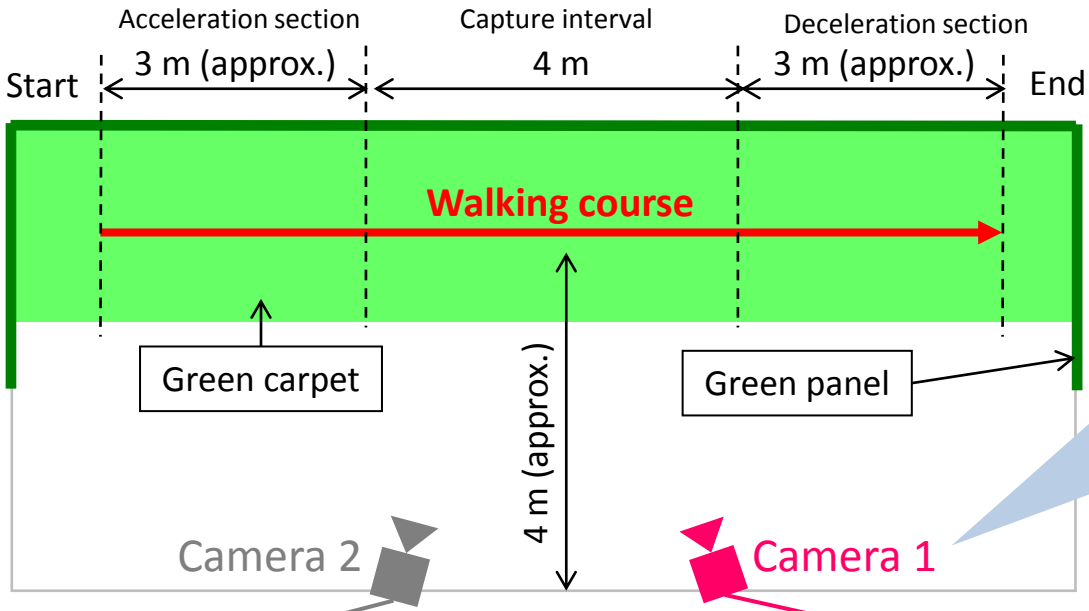
INTRODUCTION

- ***The "OU-ISIR Gait Database, Large Population Dataset"*** is a set of silhouette sequence of normal walking
  - Walking condition
    - Indoor
    - Empty-handed
    - Subject's own clothing (including hat) and footwear
    - No variation in walking condition of each subject
  - Advantage
    - Large population : Over 4,000 subjects
    - Gender balance : Ratio of males to females is close to 1
    - Whole generation : 1 to 94 years old
    - Silhouette quality : High (visually checked and modified by manual)
  - Primary purpose
    - Performance evaluation of gait recognition with statistical reliability
    - Development of gait-based age and gender estimation algorithm

H. Iwama, M. Okumura, Y. Makihara, Y. Yagi, "The OU-ISIR Gait Database Comprising the Large Population Dataset and Performance Evaluation of Gait Recognition", IEEE, Vol.7, No.5, 2012

DATA COLLECTION

GAIT CAPTURE SYSTEM

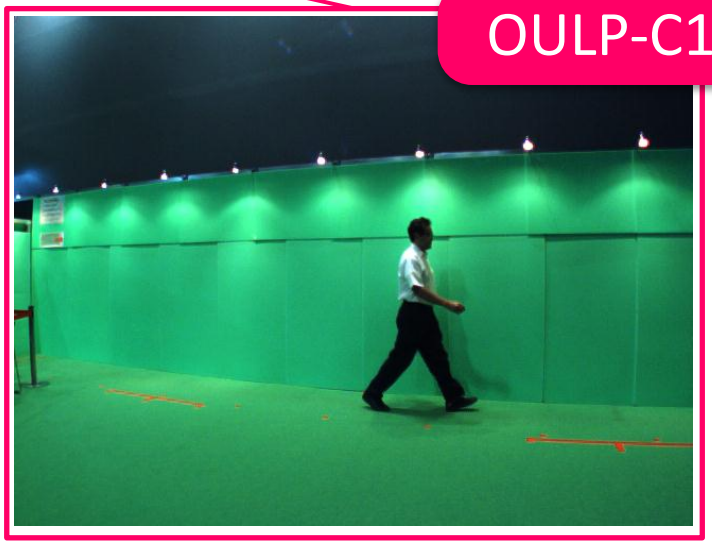


- Point Grey research Flea2
- Image size
  - VGA (640 by 480 pixel)
- Frame-rate
  - 30 fps

OULP-C2

Under construction

OULP-C1



Released !!

H. Iwama, M. Okumura, Y. Makihara, Y. Yagi, "The OU-ISIR Gait Database Comprising the Large Population Dataset and Performance Evaluation of Gait Recognition", IEEE, Vol.7, No.5, 2012

Data collection

Gait capture event

- In conjunction with demonstration in five exhibitions

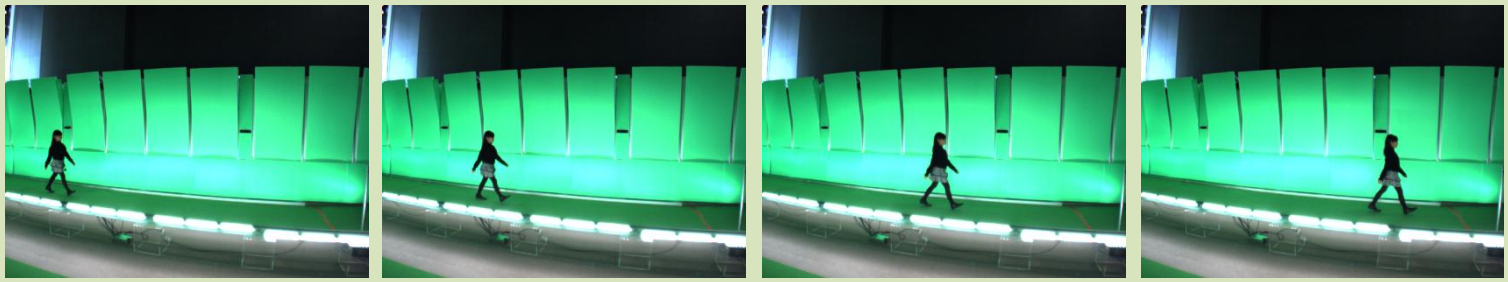
Exhibition	Term	#Days	#Visitors (approx.)
Outreach activity in DIM (Dive Into the Movie) project **(DIM2009)**	March 2009	3	1,600
5th Regional Disaster and Crime Prevention Expo **(RDCPE2010)**	June 2010	2	280
Open campus at Osaka university 2010 **(OU-OC2010)**	Aug 2010	1	70
Open campus at Osaka university 2011 **(OU-OC2011)**	Aug 2011	1	90
Outreach activity in CREST project **(CREST2011)**	Aug 2011	5	2,000

- Each subject
  - Signed release agreement for research-purpose use
  - Provided gender and age information

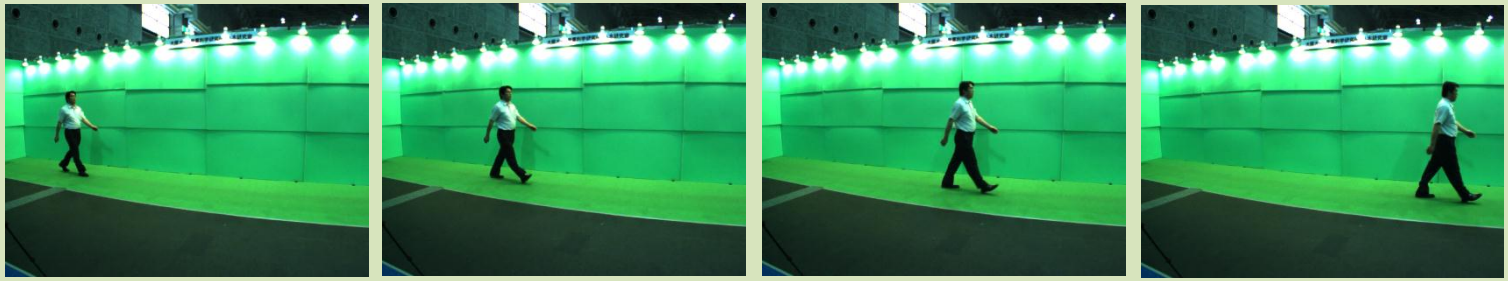
Data collection

Example of captured gait image from Camera 1

DIM2009



RDCPE2010



OU-OC 2010/2011

CREST2011

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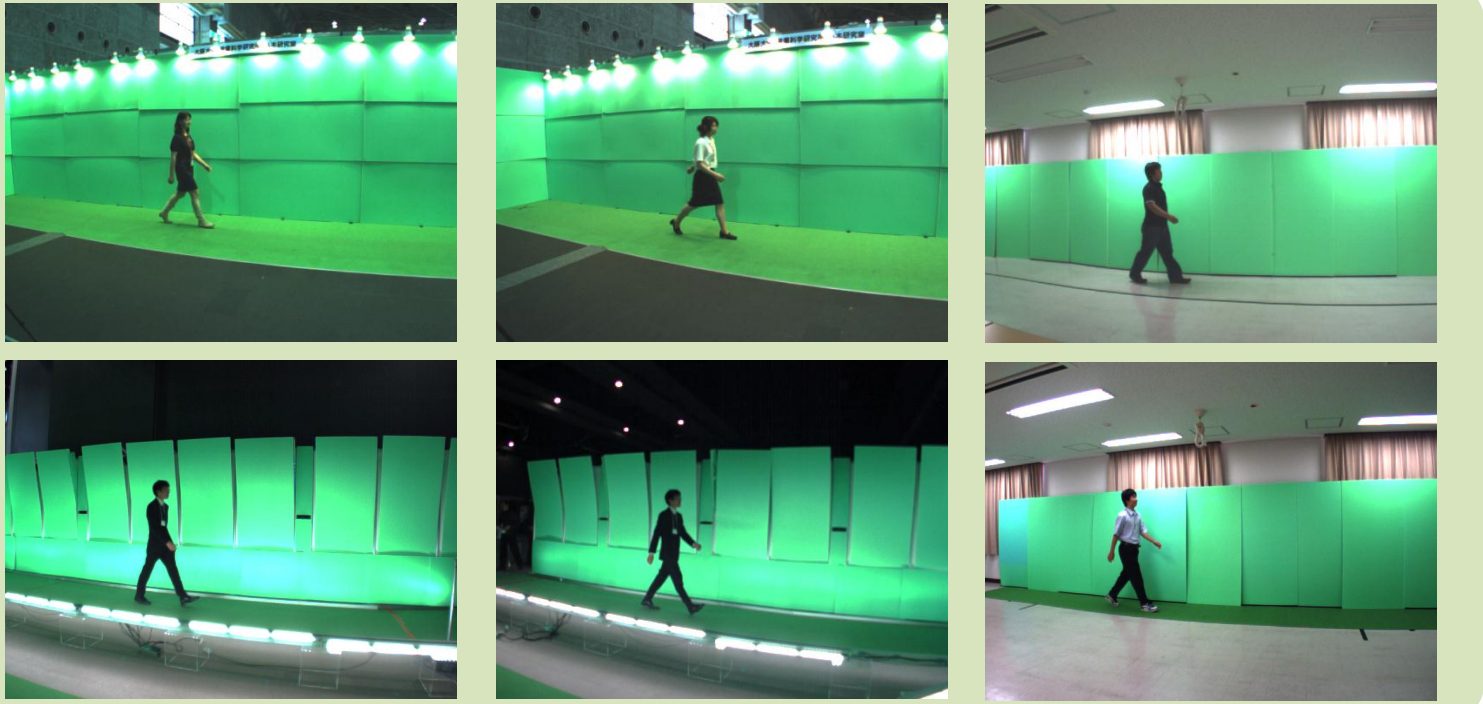
DATA COLLECTION

EXAMPLES OF SUBJECT

CORRECTION OF CAMERA ROTATION

- Camera pose variation in each event



Camera pose normalization (correction of camera rotation)

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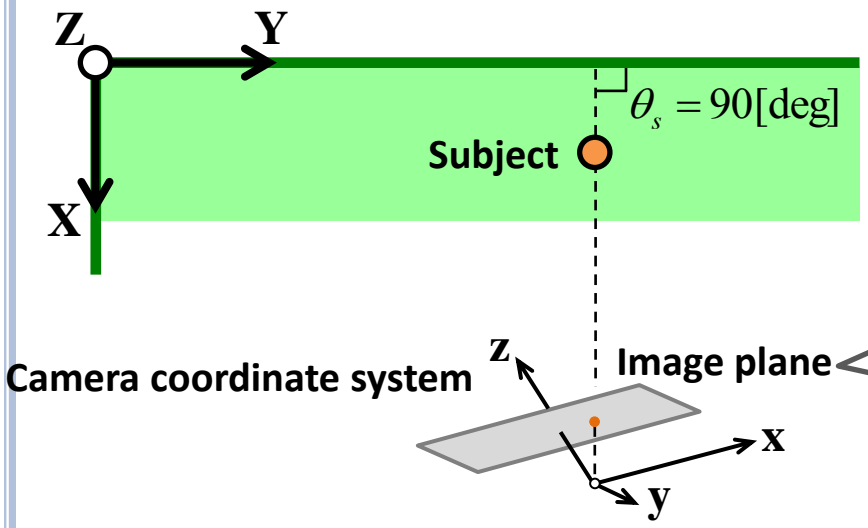
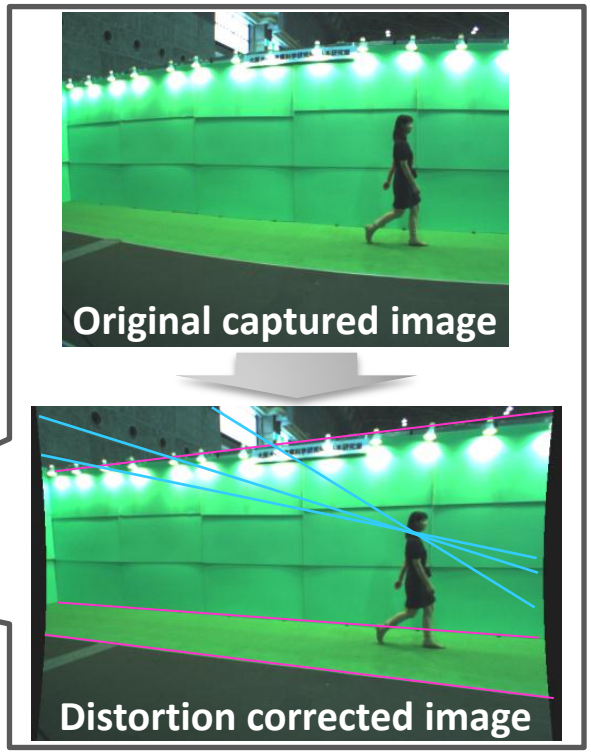
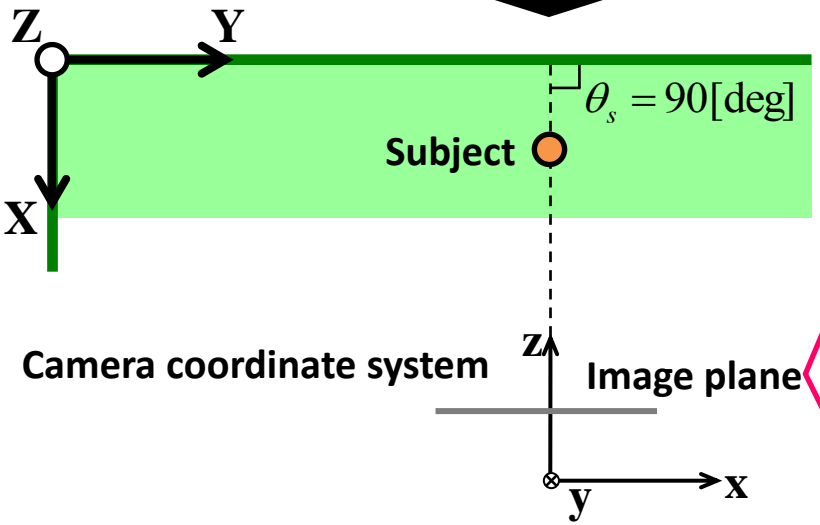
CORRECTION OF CAMERA ROTATION

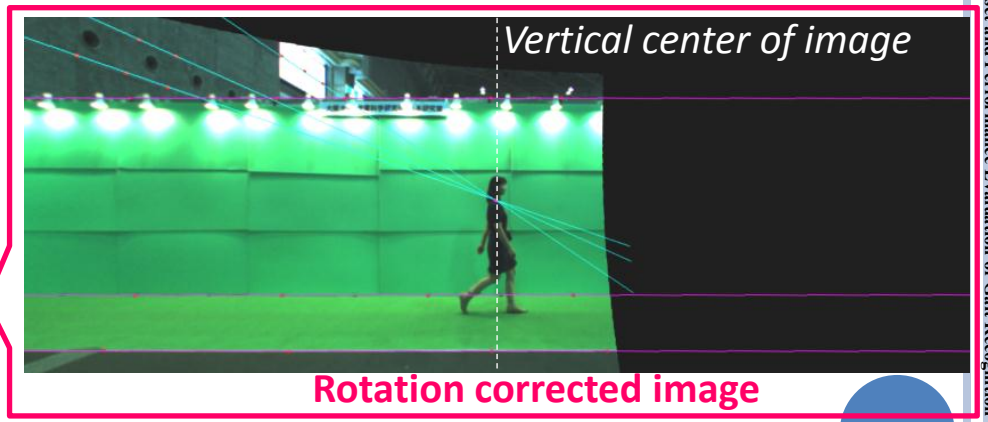




Rotation correction by using vanishing points

[Tsuji et al. 1985]





Be sure to read the original paper

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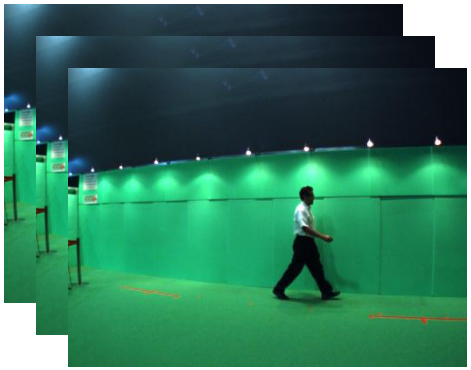
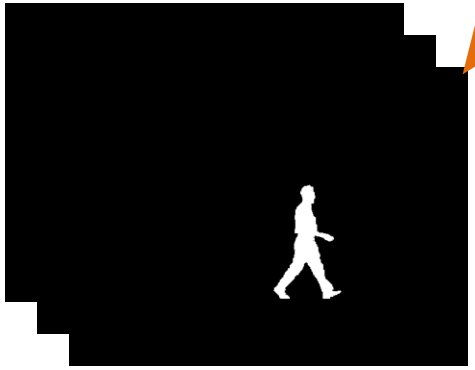
CREATION OF SIZE-NORMALIZED SILHOUETTE

Manual denoising if necessary



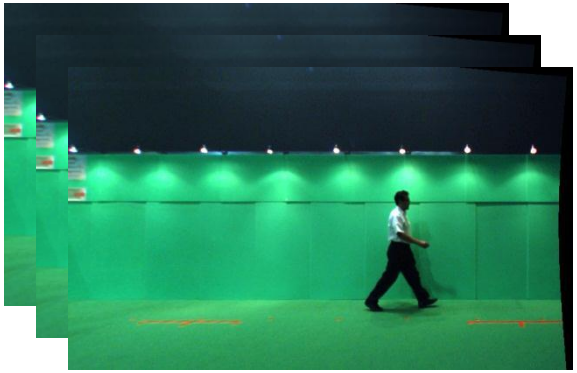
Original sequence

Background subtraction

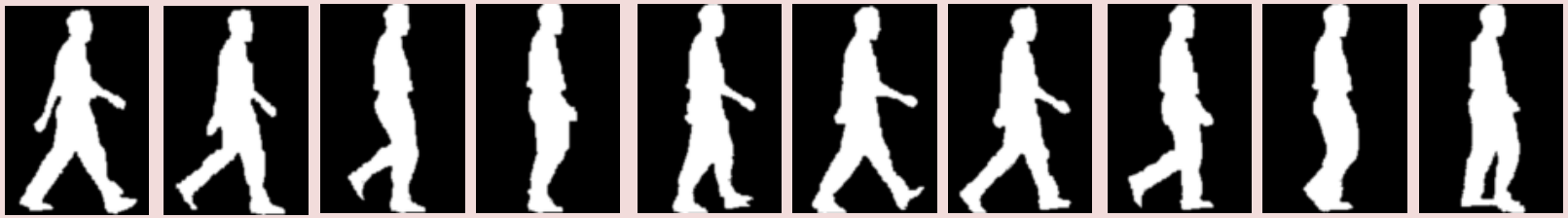


Silhouette sequence

Rotation correction



Registration and size-normalization



Normalized silhouette sequence (88x128 pix)

Definition of subset

Sequence number-based subset

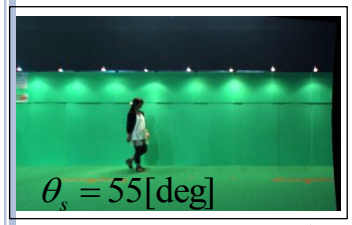
- Two primal subsets
  - 2 sequences/subject : **OULP-C1[version no.]-A**

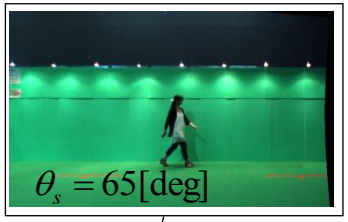
    ➡ Performance evaluation of gait recognition

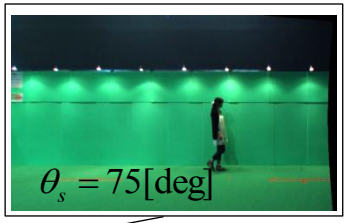
  - 1 sequence/subject : **OULP-C1[version no.]-B**

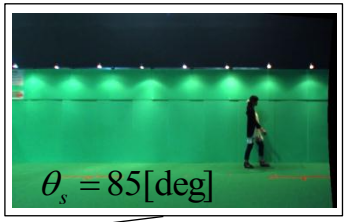
    ➡ Investigation of gait-based age/gender estimation

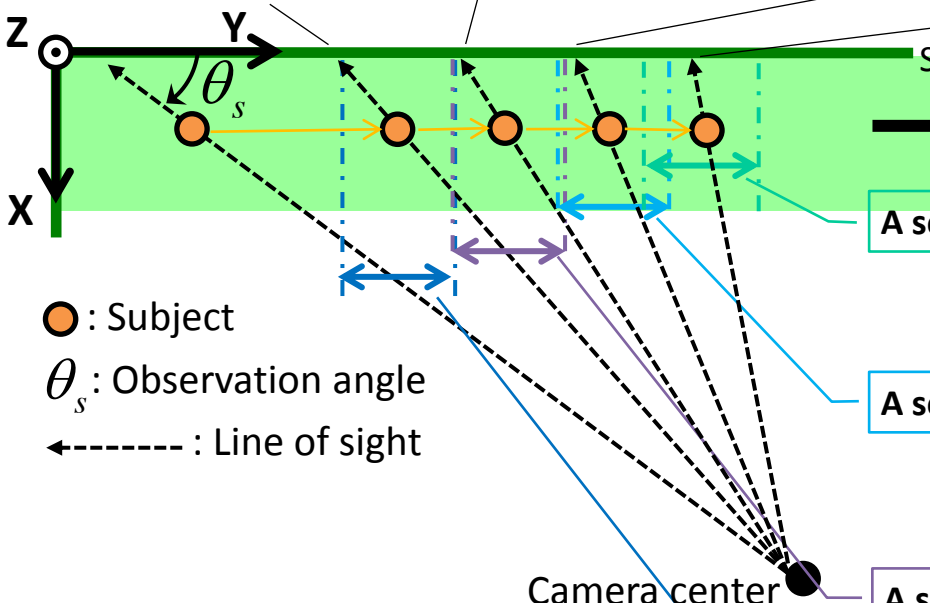
OBSERVATION ANGLE-BASED SUBSET









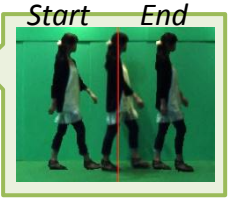


1 gait period

Start End

A section of 85 [deg]-centered gait period

A/B-85



A section of 75 [deg]-centered gait period

A/B-75

A section of 65 [deg]-centered gait period

A/B-65

A section of 55 [deg]-centered gait period

A/B-55

A section from 55[deg] to 85 [deg] A/B-All

Each dataset is strictly defined by ID list

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Authors