Appendix A

List of Research Publications by the Author


Appendix B

Description of standard databases of human gait

CASIA GAIT DATABASE

Human gait recognition has been an active research topic in recent years. The Institute of Automation Chinese Academy of Sciences (CASIA) has developed the CASIA Gait Database in order to promote research for gait recognition. The CASIA Gait Database consists of three different datasets: Dataset A, Dataset B (Multiview Dataset) and Dataset C (Infrared Dataset).

Dataset A

The dataset A has been created in the year 2001. The dataset consists of gait images of 20 subject of varying age group. Each subject has 12 image sequences, 4 sequences for each of the three directions, i.e. parallel, 45 degrees and 90 degrees to the image plane. The length of each sequence is not identical due to the variation of the walker's speed, but it must ranges from 37 to 127. The Dataset A consists of total 19139 images. Some of the sample human-gait images of dataset A has been shown in figure B.1.

Figure B.1. Sample images of Dataset A of CASIA database
Dataset B

The dataset B has been created in the year 2005. It is a large human-gait multiview database. The database consists of gait images of 124 subjects of varying age group. The images has been captured from 11 different views. Apart from the different viewing angles two more variations have been considered separately that is clothing and carrying condition change. Some of the sample human-gait images of dataset B and 11 different viewing angles have been shown in figure B. 2. The sample images of clothing variation and carrying conditions have been shown in figure B. 3.

Figure B.2. (a) Sample images of Dataset B of CASIA database (b) Sample images of Dataset B from 11 different viewing angles
Figure B.3. (a) Sample images of Dataset B with clothing variation (b) Sample images of Dataset B with different carrying conditions
The OU-ISIR Gait Database has been developed by the Institute of Scientific and Industrial Research (ISIR), Osaka University (OU), which is meant to promote research efforts in the general area of developing, testing and evaluating algorithms for gait-based human identification. The OU-ISIR Gait Database consists of three different datasets: Trademill Dataset, Large population Dataset and Speed transition Dataset.

**Trademill Dataset**
The trademill dataset has been created in the year 2007 at the Institute of Scientific and Industrial Research (ISIR), Osaka University (OU). The data set consists of subjects of different age group walking on a treadmill surrounded by the 25 cameras at 60 fps, 640 by 480 pixels. The dataset consists of several co-variate modes of the subjects: Trademill Dataset A – speed variation, Trademill Dataset B – cloth Variation. Some of the sample human-gait images of trademill dataset A has been shown in figure B. 4.

*Figure B. 4. Sample images of Trademill Dataset of OU-ISIR database*
Large Population Dataset

The dataset have been developed in the year 2009. The data set consists of subjects of different age group walking on the ground surrounded by the 2 cameras at 30 fps, 640 by 480 pixels. Some of the sample human-gait images of large population dataset have been shown in figure B. 5.

Figure B. 5. Sample images of Large Population Dataset of OU-ISIR database
USF GAIT DATABASE

The database has been developed in the year 2001 at University of South Florida (USF), Tampa. The dataset consists of the subjects of varying age group walking in elliptical paths in front of the camera. The full version of the dataset consists of 1870 sequences from 122 subjects. For each subject, different covariates have been considered such as: two different shoe types (A, and B), two different carrying conditions (with or without a briefcase), two different surface types (grass and concrete), two different view angles (Left or Right) and two different time instants. Some of the sample human-gait images of USF Gait Database have been shown in figure B. 6.
Appendix C

Description of Developed database of human gait

PSDHG Database

In the present work for detection of behavioral trait a database of human-gait images has been developed named as PSDHG database. The developed database consists of gait images of 100 different subjects with varying age group. Here five different viewing angles have been considered. The gait images have been captured considering the subject walking on a plain surface without any footwear. For each subject 50 gait images has been stored in the database, 10 images per each viewing angle. Some of the sample human-gait images of PSDHG Database have been shown in figure C.1.

Figure C.1. Sample images of subject #1 of PSDHG database
Some of the sample gait images of subject 2, subject 3 and subject 4 have been shown in below figure.

Figure C.2. (a) Sample images of subject # 2 of PSDHG database (b) Sample images of subject # 3 of PSDHG database (c) Sample images of subject # 4 of PSDHG database
Some of the sample gait images of two different female subjects have been shown below in figure C. 3.

Figure C.3. Sample images of two different female Subjects of PSDHG database