The 3DEarDB and applications

a presentation by D. Dimov (IICT-BAS)

at Computer Vision and Multimedia Lab
University of Pavia
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Acknowledgements

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This lecture faces the results of collaboration between colleagues from CLVM, UNIPA, as well as from UNISA Salerno, and from IICT-BAS. This fruitful collaboration become possible thanks to the EC project AComIn of IICT-BAS (2013-2016).

This presentation is build up on 3 papers in collaboration presented at 2 international scientific events organized in the frames of AComIn, namely:

Appearance-Based 3D Object Approach to Human Ears Recognition

by Dimo T. Dimov, and Virginio Cantoni
(dtdim@iinf.bas.bg, virginio.cantoni@unipv.it)

a paper presentation

at the International Workshop on Biometrics, BIOMET'2014, in the frames of AComIn project (Advanced Computing for Innovation) of ICT-BAS
June, 23-24, 2014, Sofia, Bulgaria

The objective: to describe in brief the 3DEarDB of IICT, as well as a few applications of 3DEarDB, and to provoke a discussion about its future.

Why 3 dimensional DB (P3, 8-12), and Why in Ear Biometrics (P3, 4-5 - 7).

The 3DEarDB structure (P1, 2-4),

Extended Gaussian Image (EGI): an approach to 3D object representation (see P2, 3-11)

Data gathering for 3DEarDB: 3D scanner,… (P1, 5-13),

Tests for recognition ability of 3DEarDB:

- Primary 3D test (3D ↔ 3D) (not any sense for now)
- EGI based test (3D → 2D ↔ 2D ← 3D) (see P2, 13-16) (see P1, 14-17)
- 2D appearance and multi-view based test (2D ↔ 2D ← 3D) (see P3, 8-18)
- a ‘shape-from-shadow’ approach for 2D appearance and EGI based test (2D ↔ 3D) ☺ still under construction

Discussion
3DEarDB applications in brief

A more detailed schema of using 3DEarDB in our research recently

Cloud of 3D points → 3D Reconstruction

Video stabilization

3D Segmentation

3D EGI

2D EGI

2D projections

3D Recognition

MVSoI project

3DEarDB

Video

Stereovision

by trajectory

by point

CCD

CMOS

Scenario of Advertisements

CROSS Agency Ltd.

AComIN Speed camera

AComIn 3D scanner

The EFCBIOR method
2D appearance and EGI – some results

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For more details, please refer to the link provided.
Thank you
(for your questions 😊 )