

2013

Symposium on

Image Processing, Image Analysis and

Real-Time Imaging (IPIARTI) 2013

Symposium on Acoustic, Speech and

Signal Processing (SASSP) 2013

DATE: Thursday 9 May 2013

**VENUE: Universiti Tenaga Nasional,
Putrajaya Campus, Selangor**

TOPICS (SPEAKERS):

Keynote #1:

The Status of Digital Watermarking,

**Dr. Ton Kalker, VP, Security and DRM, DTS
Inc., USA.**

Keynote #2:

Technologies in Cardiac Imaging,

**Prof. Dr. Ir. Eko Suprianto, Director,
IJN-UTM Cardiovascular Engineering
Centre, UTM**

Keynote #3:

**From theory to practice – Experiences
with the DSP-Microcontroller for
Mechatronic systems,**

**Dr. Farrukh Hafiz Nagi, Associate
Professor, UNiversiti Tenaga
Nasional, Putrajaya Campus**

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Details can be found [HERE](#)

2012

**IMAGE
PROCESSING, IMAGE
ANALYSIS AND REAL
TIME IMAGING
WORKSHOP (IPIARTI)
2012**

**DATE: 30 AUGUST
2012 (THURSDAY)**

**VENUE: UNIVERSITI
TEKNOLOGI MARA,
SHAH ALAM, Selangor**

TOPICS (SPEAKERS):

Keynote #1:

***Photo Forensics:
There is more to a
picture than meets th
e eye***

Prof. Nasir D Memon

Polytechnic Institute of New York, USA

Keynote #2:

Spectral Approach to Color and

Lighting

**Prof. Jussi
Parkkinen**

Monash University, Malaysia

Keynote #3:

Biometric Rich Gestures: A touching farewell to passwords?

Prof. Nasir D Memon

Polytechnic Institute of New York, USA

Keynote #4:

Assessing The Extent of Uniqueness of A Fingerprint

Match

Assoc. Prof.

Dr. Sarat C.

Dass

Michigan State University, USA

Regular Presentations:

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

1) *An application of the new Signal Processing Technique*

Hilbert Huang Transform (HHT) to Machine Tool Condition Monitoring - Joseph

Emerson Raja (MMU)

2) GUI System for Enhancing

Blood Vessels Segmentation in Digital Fundus Images - Ahmad Zikri Rozlan (UiTM)

3) *Noise Removal for Weather Degraded Image* - Mohd Helmy Abd Wahab

(UTHM)

2011

**IMAGE
PROCESSIN
G, IMAGE**

ANALYSIS AND REAL TIME IMAGING WORKSHOP (IPIARTI)

2011

DATE: 6

OCTOBER

2011

**(THURSDAY
)**

VENUE: MULTIMEDI A UNIVERSITY , CYBERJAY

A, SELANGOR

TOPICS (SPEAKERS):

Keynote #1:

Image Analysis by Orthogonal Moments

and Implementation of them by Digital Filters

Prof. P.

Raveendr an

Universiti Malaya (UM)

Keynote

#2:

Semantic Technolog y for

Image Understan ding

Dr. Dickson Lukose

MIMOS

Keynote

#3:

Advanced Image Correlatio

n Filters

Prof.

Salina

Abdul

Samad

Universiti Kebangsaan an Malaysia (UKM)

Technical Talks

Written by Administrator

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Regular Presentati ons:

Technical Talks

Written by Administrator

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1) A

robust

texture

feature

extraction

*using the
localized
angular
phase* -
Khairul

Muzzammi I (UTEM)

2) *Tree* *Nutrients* *Prediction* *by Image* *Analysis*

- Lee Aik Leng (MMU)

3) *An Improved Medical Image Compress*

ion

Algorithm

using PCA

Neural

Network

- Yeo Weng Kwong (UTEM)

4) \square *Hilbert* *Huang* *Transform*

***, a new
and
promising
technique
for***

non-linear
and
non-statio
nary
signal

analysis

- Emerson

Raja

Joseph

(MMU)

5) A

Contrast

Enhancem

ent

Technique

for

Infrared

Thermogr

aphy -

Lo Tzer

Yuan

(MMU)

6) *Analyzing Graphic*

Design Hidden Rules and Popular Beliefs in

Contempo rary Packaging Design for Various

Local Detergent Product - Hafizul Idham &

Saiful Akram Bin Che Cob (UiTM)

7) *Compu tation of Uncertaint*

y of
Physiogra
phic
Features
Extracted

from
Multiscale
Digital
Elevation
Models

Using Fuzzy Classification

Dinesh

Sathyamo orthy (STRIDE)

8) *Classification Algorithm for Papaya*

Ripeness Determina tion Using Digital Colour

Analysis

- Low

Cheng

Seng

(MMU)

9) *Development of Control*

System of Continuous Sterilizer of Palm Oil Mill

Using Image Processing Technique

- Dr. Saad A. Abbas (UTM)

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

2010

IMAG

E

PROCES

SING,

IMAGE

ANALYSI S AND REAL TIME IMAGING

WORKSH OP (IPIARTI) 2010

DATE:

16

DECEMB

ER 2010

(THURSD

AY)

VENUE: UNIVERSI TI TEKNOL OGI

MALAYSIA

A,

KUALA

LUMPUR

TOPICS (SPEAKE RS):

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Biomedic al

Engineer ing – Medical Image

Analysis

in

Clinical

Practice

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Prof. Dr.

Ahmad

Fadzil

Hani

Universi ti

Teknolo

gi

Petrona

s

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Face Recogni

tion

Under

Variant

Head

*P*oses

Assoc.

Prof. Dr.

Syed

Abdul

Rahman

Syed

Abu

Bakar

Universi ti

Teknolo

gi

Malaysi

a

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Statistic

al

Multivariate Technique for

Some Image Analysis Problem

S

ASSOC.

Prof. Dr.

Omar

Mohd

Rijal

Univ^{er}si ti Malaya

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Develop ment of

Shape Extraction on Algorithm

***ms for
Trademark
ark
Image***

Search System Applicat ion

ASSOC.

Prof. Dr.

Moham

mad

Faizal

Ahmad

Fauzi

Multime dia Universi ty

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

FPGA-based

Architec tures for 3-D Medical

Image Compre ssion

Dr. Afandi

Ahmad

Universi ti Tun Hussein Onn

Malaysi

a

(UTHM)

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Perform ance

Evaluati

on of

PCA

and

Histogram m of Oriented Gradient

based

Pedestri

an

Classific

ation

Mohd

Haris

Lye

Abdulla

h

Multime dia Universi ty

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Explorin

g

Nearest-

Neighbo

r

Distanc

e for

Histogram

m-

based

Fruit

Ripenes

s

Identific

ation

Fatma

Susilaw

ati

Mohama

d

Univ^{er}si ti Teknolo gi

Malaysi

a

A Novel Algorithm

***m for
Finding
Critical
Points***

***of
Online
Jawi/Per
sian/Ara***

bic

Handwri

tten

Charact

er using

in

Feature

Extracti

on

Majid

Harouni

Univ^{er}si ti Teknolo gi

Malaysi

a

Color Image

Indexing

And

Retrieval

Of

Docu ments Capture d From

Consum

er

Handhel

d

Devices

Danial

Md Nor

Universi ti Tun Husseini Onn

Malaysi

a

(UTHM)

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

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Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

IMAGE ANALYSIS

IS TALKS AT UTP

DATE:

3

DECEM

BER

2010

**(FRIDAY
)**

VENUE

■
■

UNIVER

SITI

TEKNOLOGI petronas , perak

TOPICS (SPEAK

ERS):

Disease Detection Using Artificial

Neural Network

ASSOC.

Prof. Dr.

R. Loges

waran

N.Rajasv aran

Multimed

ia

Universit

y

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Statistica

/

Multivari ate Techniqu e for

Some Image Analysis Problems

ASSOC.

Prof. Dr.

Omar

Mohd

Rijal

Universiti Malaya

Technical Talks

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Technical Talks

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Blind System Identification

(Decomv olution) For Thermo

couple Sensors - A Research

h Area

Involves

Signal

Process

ing For Sensor Applicat ion

Dr. Seán McLoon e

(Nationa

I

Universi

ty of

Ireland

Maynooth

h)

Date:

28 June

2010

**(Monday
)**

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Venue: Faculty of Electrica

I

Engineer

ring,

Universi

ti

Teknolo

gi

Malaysia

**, Skudai,
Johor.**

Abstract:

In

conventi

onal

automoti

ve

vehicle
applicatio
ns, only
the

measure ment of low frequenc

y

temperat

ure

variation

s is
usually
required,
and

standard

robust

sensors

such as

thermocouples,
resistance
e

temperat ure detectors (RTD)

and
thermistors
suffice.

However,
recent
advances
in

engine
design
have
resulted

in the
need for
robust
temperat

ure
sensors
that have
fast

response
character
istics. An
important

example

where

such

sensors

are now
required
for
control

and
diagnosti
cs would
include

on-board diagnosis (OBD) of catalyst

malfuncti on.

In many
sensors,

the

smaller

the

sensing

elements

, the

faster will

be the

response
but at the
expense
of

durability and ease of manufact

ure.

Therefore,
most
sensors

involve a
comprom
ise
between

performance and the conflictin

g
requirements for
ruggedness

ss and

low cost.

Experime

ntal work

on exhaust systems by the

Internal Combusti on Engines

Research Group at QUB showed

that
during
transient
operation

,

conventi

onal

thermoco

uple
sensors
gave
errors of

up to
200°C. A
reduction
in wire

diameter

dramatic

ally

improved

the

accuracy

, but in

the harsh

environm
ent of an
exhaust
system,

a lower
limit to
the
diameter

is quickly
reached,
below
which

sensor
failure
occurs.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

We are
researchi

ng a
complete
ly novel
discrete-t

ime

linear

identificat

ion

framework,
which
allows
insitu

dual sensor character isation.

This
eliminate
s the
major

shortcom
ing of
other
approach

es which
require
that the
dual

sensor
character
istics are
known a

priori.
Extensiv
e
simulatio

n studies

have

shown

that the

new

methods

reduce

the

sensitivit
y to
noise on
the

inputs.

Much of

our

recent

theoretic
al work is
concerne
d with

the evaluation of alternativ

e
identificat
ion
schemes

. Regular Least Squares (LS) has

proved
unsatisfactory as
it

produces
biased
parameter
r

estimate

s while

more

powerful

techniques such
as
Generali

sed Total

Least

Squares,

which

accomm

odate

coloured

input and

output
noises,
have
been

shown to
provide
bias-free
estimate

S.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Advances in Biomedical cal

Enginee ring

**Date:
22nd
April
2010**

(Thursd
ay)

Venue: AIMST Universi ty,

Kedah

Topics (Speakers):

ANN

Detection

for Liver Disease

ASSOC.

Prof. Dr.

R. Loges

waran

N.Rajasv aran

Multimed

ia

Universit

y

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Technolo gy &

Applicati on of Micro CT scan

Ms. Cater
ine Ong

Hi-Tech Instrume

nts

Sdn.Bhd.

Time-Fre quency

Signal Processing in Bio-Medi

cal

Applicati

ons

Mr.

Mahendr

a

V.Chiluk

uri

Multimed ia

Universit

y

Recent Advance

s in

Biomateri

als

Profesor Hj. Zainal

Arifin b.

Ahmad

Universiti Sains Malaysia

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Abstract: Biomedic

al
engineering
ng
involves

the application of the principles

and
scientific
techniques
of

engineeri
ng to the
enhance
ment of

medical science as applied

to

humans

or

animals.

It
involves
an
interdisci

plinary

approach

which

combine

s the
engineering
ng
sciences,

mechanics,
design,
modellin

g and problem- solving skills

employee

d in

engineeri

ng with

medical and biological sciences

so as to
improve
the
health,

lifestyle and quality-of -life of

individual

s.

Biomedic

al

engineering is a relatively new field,

and
involves
a whole
spectrum

of
discipline
s
covering:

medical
imaging,
image
processi

ng,
artificial
intelligent
ce,

neural network, physiolog ical

signal processi ng, biomech

anics,
biomateri
als,
bioinform

atics and bioengin eering, systems

analysis, 3-D modellin g, etc.

Combining these disciplines,

systemati
cally and
synergisti
cally

yields

total

benefits

which

are much
greater
than the
sum of

the
individual
componen
ts.

Prime examples of the successf

ul

applicatio

n of

biomedic

al
engineering
ng
include

the develop ment and manufact

ure of biocomp atible prosthes

es,
medical
devices,
diagnosti

c devices and imaging equipme

nt and
pharmac
eutical
drugs.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Deploy ing Textual Mathem

atics on

Real-Ti

me

Embedd

ed Hardwar e with LabVIEW

W

MathScr

iptRT

Module

KEN

NG,

MARKE

TING

ENGINE ER, NATION AL

INSTRUMENTS

Date:

24th

FEBRUUA

RY 2010

Venue:

MULTIM

EDIA UNIVER SITY, CYBERJ

**AYA,
SELANG
OR**

Abstract: Using textual mathema

tical software for signal processi

ng and
analysis
has
become

increasin

gly

important

in

research and develop ment for

many
engineer
s and
scientists

■

However,
the
challeng

e most
engineer
s and
scientists

face is to
impleme
nt their
textual

mathema
tical
algorithm
s into the

real-world
embedded

hardware

. In this

technical

talk, the

deployment of textual mathema

tics on real-time embedde d

hardware

using the

new

LabVIEW

MathScri
ptRT
Module
will be

explored
and
real-world
d

engineeri
ng
applicatio
ns will be

discusse

d.

2009

Music Trackin g in Audio

Streams

Prof.

SERGIO

S

THEOD ORIDIS, UNIVER SITY OF

ATHENS

,

GREEC

E

Date:

11th

DECEM

BER

2009

Venue:

UNIVER

SITI

TUNKU

ABDUL

RAHMA

N,

KUALA

LUMPU

R

Abstract: The problem of music

tracking in audio streams has

recently
attracted
a lot of
attention,

mainly in
the
context
of audio

content character ization applicatio

ns.

Intelligen

t

browsing

of audio
streams,
automatic
c audio

content

annotation

indexin

g,

querying audio streams by audio

example and copyright manage

ment are
some of
the tasks
that can

benefit
from
efficient
music

tracking algorithm s.

In this
talk we
will
present

some
recent
advances
in

music tracking systems in a) the

context of music/sp eech

discrimin ation in radio recording

s and b)
in the
context
of music

detection in audio sound tracks in

films and video recordings. The

latter is a
harder
task,
since,

besides
speech,
a
diversity

of sound
sources
are
involved.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Adapti ve Learnin g in a

World of Projecti ons Prof.

SERGIO

S

THEOD

ORIDIS,

UNIVER SITY OF ATHENS

,

GREEC

E

Date:

11th

DECCEM

BER

2009

Venue:

UNIVER SITI TUNKU ABDUL

RAHMA

N,

KUALA

LUMPU

R

Abstract:

The task of parameter r/function

estimat
io
n has
been at
the

center of
scientific
attention
for a long

time and
it comes
under
different

names
such as
filtering,
predictio

n,
beamfor
ming,
curve

fitting,
classifica
tion,
regressio

n.

In this
talk, the
estimation
task is

treated in
the
context
of set

theoretic estimat n argument

S.

Instead

of a

single

optimal
point, we
are
searchin

g for a
set of
solutions
that are

in
agreement
with
the

available
informati
on, which
is

provided
to us in
the form
of a set

of training points and a set

of
constraints. Each
point in

the
training
data set,
as well

as each
one of
the
constrain

ts, is
associated
with a
convex

set,
construct
ed
accordin

g to a
(convex)
loss
function

(differentiable or not).

The goal
of this

talk is to
present a
general
tool for

parameter
function
estimation,
under

a set of
convex
constraints,
both

for
classifica
tion as
well as

regressio
n tasks,
in a time
adaptive

setting in (infinite dimensional)

Reprodu cing Kernel Hilbert

spaces
(RKHS).

The algorithmic scheme

consists
of a
sequenc
e of

projections, of linear complexity

y with
respect
to the
number

of
unknown
parameters.
Our

theory

proves

that such

a

scheme
converge
s to the
intersecti

on of all
(with the
possible
exceptio

n of a
finite
number
of) the

convex

sets,

where

the

required
solution
lies. The
performa

nce of
the
methodol
ogy is

demonstrated in the context

of nonlinear classifica tion and

robust beamfor ming in communi

cation systems.

The work
has been
carried
out in

cooperati on with Kostas Slavakis

and Isao Yamada.

Smart Space with Signal

Process ing for Human Behavior

r

Monitoring

ng

ASSOC

. Prof.

WEE

SER,

Nanyan

g Technol ogical Universi

ty,

SINGAP

ORE

Date:

18th

**November
2009**

Venue:

CITITEL

HOTEL,

KUALA

LUMPU

R

Abstract:

Imagine a physical space

filled with
“experts”
whose
role is to

provide
personali
zed
services

to a
targeted
group of
human

subjects

in that

space.

With the

“experts”,
such a
space
will be

smart
enough
to take
care of

the

needs of

the

targeted

human
subjects
in that
space.

The
question
is: “can
we do it

without
involving
real
human

experts
(e.g.
nurses) ”
as the

later are
valuable
and may
be put to

better
use. This
talk will
present a

vision for
such a
futuristic
smart

space.

Basically,

the idea

is to

equip the
space
with
sensors

and a signal processi ng

system,

that

perform

the

functions of “eyes”, “ears”, other

“sensors”

, and

“brain”.

Findings

of some
ongoing
projects
that

attempt
to enable
such a
smart

space
will be
used to
illustrate

some of
the
concepts
. The

example
used for
the
space in

this talk

is a

home,

and the

personalized
service
enabled

is the
monitorin
g of the
daily

living activities for the elderly

for

healthcar

e

purposes

. The talk
will
discuss
the

possible
system
requirements
as

well as
research
challeng
es. Video

clips will
also be
shown
on some

preliminary
results
obtained
on the

detection and recogniti on of the

behavior s of human subjects

in a
closed
room
setting.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

2008

Recent Advanc es in Neural

and

Cognitiv

e

Enginee

ring

Prof.

Daniel J.

Strauss,

Saarlan

d

Universi

ty

Hospital

,

German

y

Date: 4^t

h

**Novemb
er 2008**

Venue: Universi ti Teknolo

gi

Malaysia

, KUALA

LUMPU

R

Abstract:

In this
talk we
will
present

recent modeling and analysis

techniques used in neural and

cognitive engineering as emerging

fields of biomedic al engineeri

ng. The neurodyn amics of the brain

function

covers

spatio-te

mporal

scales from the level of synaptic

activity to
the level
of
surface

electroen

cephalog

raphic

correlate

S. A
variety of
multiscal
e

computat
ional
methods
have

been

develope

d in

different

scientific
discipline
s with a
large

impact in the modeling and

analysis of the brain dynamics

, e.g., to
disclose
multiscal
e

phenome
na
underlyin
g the

electroen
cephalog
raphic
generatio

n or to
improve
the
noninvasi

ve

medical

neurodia

gnostics

and therapy using electroen

cephalog

raphic

methods.

This talk

will focus
on recent
develop
ments in

neurophy siological and neuropsy

chologica

|

multiscal

e

electroen cephalog raphic modeling

and analysis using neural

fields,
corticoth
alamic
feedback

dynamics

, and

multiscal

e

wavefor

m

decompo

sition

techniques. In particular, we

preset the applicatio n of

these
concepts
to current
problems

related to
auditory
processing
and

perceptio n.

The Particle Filtering Method

ology in Signal Process ing

Prof.

Petar M.

Djuric,

Stony

Brook University, USA Date: 1

st

August

2008

Venue:

Multime dia Universi ty,

Cyberjaya,

a,

Selangor.

r.

Abstract: Particle

filtering is a Monte Carlo – based

methodol ogy for sequenti al signal

processi
ng. It is
designed
for

estimation of hidden processes

s that are
dynamic
and that
can

exhibit

most

severe

nonlinear

ities.

Also, it

can be

applied

with

equal

ease to

problems

that

involve

any type

of

probabilit y distributi ons.

Therefore,
it is
not
surprising

g that
particle
filtering
has

gained
immense
popularity.
In this

talk, first, the basics of particle

filtering
will be
provided
with

descripti
on of its
essential
steps.

Then
some
important
topics of

the

theory

will be

addresse

d

including

Rao-Blac

kwellizati

on, smoothing g, and estimation

n of
constant
paramete
rs.

Finally, a
presentation
of
most

recent advances in the theory

will be

given.

The talk

will

contain
signal
processi
ng

example
s which
will aid in
gaining

valuable
insights
about the
methodol

ogy.

STATISTICAL SIGNAL PROCESSING

SSING AND ITS APPLIC ATIONS

PROF.

PETAR

M.

DJURIC,

STONY BROOK UNIVER SITY,

USA.

DATE:

31ST JU

LY 2008

VENUE

■
■

MONAS

H

**UNIVER
SITY
MALAYS
IA,**

BANDA

Y

SUNWA

Y,

SELANG

OR.

Abstract: Statistica I signal processi

ng is a
field of
signal
processi

ng that applies probabilit y theory

and statistics for extractin

g
informati
on from
observed

data in

as

accurate

way as

possible.

In this

talk, the

basics of

the field
will be
reviewed
and

many
examples
if its
use in

practice
will be
provided.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Challenges and Trends

in Biometri cs Prof.

Dr. Salina Samad, Universi

ti

Kebang

saan

Malaysia

Date:

30th

June

2008

Venue: Multime dia Universi

ty,

Cyberjay

a,

Selanggo

r.

Abstract:

Biometric s in the security industry

refers to
measura
ble
physical

character
istic or
personal
behavior

al trait
used to
recogniz
e an

identity
or verify
a
claimed

identity.

Biometric

s is an

alternativ

e to more
traditiona
|
methods

of
identifying
g a
person

since it is
based on
something
g that a

person

is, not on

what he

owns or

has to
remember
r, such
as keys,

passwords or
PINs.
Signal

processi ng and pattern recogniti

on
techniqu
es along
with

sensor
design
make up
the core

technolo gies for biometric s. An

overview of biometric s is

covered,
from
historical
perspecti

ve to
current
usage.
The

trends

associate

d with

biometric

applicatio

ns

highlight

the

challeng
es that
research
ers have

to

overcom

e in order

for

biometric

s to be a

viable

technolo

gy of the
future.

Accuracy

,

reliability and security issues

that arise
from
using
biometric

s pose
challeng
es that
can be

addresse
d using
new
algorithm

s which

include

vitality

detection

,

multi-bio

metrics

and

encryption. As the technology

matures
and
standard
s are in

place, applicatio ns using biometric

s may

become

ubiquitous

s

worldwid

e.

Acoustic Signal Processing for

Next-Ge neration Multicha nnel

Human/ Machine Interfac es

Prof. Dr. Ing Walter Kellerm

ann, Univer sity Erlange

**n-Nurem
berg,
German
y.**

Date: 3^r

d

January

2008

Venue: Universi ti Teknolo

gi Malaysia , KL

Abstract: The acoustic interface

for future
multimed
ia and
communi

cation

terminals

should

be

hands-free
e and as
natural
as

possible,

which

implies

that the

user

should

be free to

move

and
should
not need
to wear

any
devices.

For
digital

signal
processi
ng this
poses

major challeng es both for signal

acquisition and reproduction, ion,

which

reach far

beyond

the

current state of the technolo

gy. For
ideal
acquisitio
n of an

acoustic source signal in noisy

and
reverber
ant
environm

ents, we
need to
compens
ate

acoustic echoes, supppress noise

and
interferen
ces and
we would

like to

dereverb

erate the

desired

source

signal.

On the

other

hand, for
a perfect
reproduct
ion of

real or virtual acoustic scenes

we need
to create
desired
sound

signals at
the
listeners
ears,

while at
the same
time we
have to

remove

undesire

d

reverber

ance and

to

suppress

local

noise. In
this talk
we will
briefly

analyze
the
fundame
ntal

problems for signal processi ng in the

framework

k of

MIMO

(multiple

input - multiple output) systems

and
discuss
current
solutions.

In
accordan
ce with
ongoing

research

we

emphasi

ze

nonlinear and multichan- nel

acoustic
echo
cancellati
on, as

well as
micropho
ne array
signal

processi
ng for
beamfor
ming,

interferen
ce
supppress
ion, blind

source separatio n, and source

localizati on.

Tacklin g the Acousti c

Front-en d for Distant- Talking

Automat ic Speech Recogni

tion

Prof.

Dr. Ing

Walter

**Kellerm
ann,
Univer
sity**

Erlange n-Nuurem berg, German

y.

Date: 3^r

d

January

2008

Venue:

Universi

ti

Teknolo

gi

Malaysia

, KL

Abstract: With the

ever-gro
wing
interest
in

'natural'

hands-free

e

acoustic

human/m
achine
interface
s, the

need for
according
g
distant-ta

Using automatic speech recognition

on (ASR)

systems

increase

s.

Considering interactive e TV as

a
challengi
ng
exemplar

y

applicatio

n

scenario,

we

investigat

e the

structural

problems
presente
d by
noisy

and
reverber
ant
multi-sou

rce
environm
ents with
unpredict

able

interferen

ce and

acoustic

echoes

of

loudspea

ker

signals,
and
discuss
current

acoustic signal processi ng

techniques to
enhance
the input

to the
actual
ASR
system.

Special
attention
is paid to
reverber

ation,
which
affects
speech

recogniz
ers much
more
than

human
listeners,
and a
recently

publishe
d method
incorpora
ting a

reverberation model on the

feature
level of
ASR is
discusse

d.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

TITLE: FUNDA MENTA LS OF

SPEECH AND AUDIO SIGNAL

**PROCE
SSING
PROF.
DR. ING**

WALTE

R

KELLER

MANN,

UNIVER SITY ERLAN GEN-NU

REMEMBE

RG,

GERMA

NY.

DATE:

2 ND

JANUAR

Y 2008

VENUE

■
■

SELANG

OR

RESOU

RCE

DEVELO

PMENT

CENTER , SHAH ALAM, SELANG

OR.

Abstract:

Some
fundame
ntals,
current

techniques, and perspectives for

the future
will be
presente
d for the

following
topics:

- Hum an speech productio

n and

hearing

- Repr

esentatio n of speech and

audio signals - Sour

ce

coding

techniqu

es

Speech Recognition

strategie

s

- Spe

ech

synthesis

methods

- Sign

al
enhance
ment
techniqu

es

2007

Toward s a Definitio n of a

Vascula r-Health Index Using

Photopl ethysmo graphy Assoc.

Prof. Dr. Edmond Zahedi, Universi

ti

Malaya.

Date:

31 st

May 2007

Venue: Universi

ti

Teknolo

gi

Malaysia

, KL

Abstract:

Non-inva
sive,
direct
vascular

character ization of patients -where

the
ultimate
objective
is "to

provide a
totally
non-inva
sive

instrument to assist the physician

in the
diagnosti
c with
reliable

estimate s of the mechani cal

properties of the vascular bed"-

seems to

have

always

remained

an

elusive

target.

Although

attempts

have

been

made to

find
non-inva
sive,
clinically

meaningf

ul

paramete

rs since

the
seventies
, it is only
in the

previous
decade
that
digital

signal
processi
ng tools
have

been so
readily
available.
Owing to

this
progress,
complex
software

processi
ng
functions
are put at

the dispositio n of research

ers

without

them

being

necessar

ily

professio

nal

program
mers. On
the other
hand,

advances
in
non-invasive

instru
me
ntation
have
paved

the way

to

indirect

yet

accurate
measure
ments of
essential

parameters such as blood flow and

pressure.

The

Windkessel

sel (Wk)

model is
widely
used for
modeling

the

vasculatu

re: it

elegantly

accounts for the relevant paramete

rs in vascular character ization,

namely:
arterial
compliance,
ce,

resistanc

e and

blood

inertance

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51



Statistical Methods in PTB

Detectio n Using Digital Chest

Radiogr aph Assoc. Prof. Dr.

Omar

Mohd

Rijal

(Univers

iti

Malaya)

Date:

22 nd Ma

y 2007

Venue:

Multime

dia

Universi ty

Abstract:

Two

million

deaths

are due

to

tuberculo

sis (TB)

every

year.

About

one

million

new

cases of

lung

cancer

have

been

detected

annually.

Despite

rapid

advance

s in medical imaging technolo

gy, the
conventi
onal
chest

radiograp

h is still

an

important

ingredient in the diagnosis of lung

ailments.

Further,

it is well

known

that
mainly
experien
ced

medical
officers
are
capable

of
accurately
detecting

MTB,
and
similarly
early-sta

ge LC

from

chest

radiograp

hs. The
immediat
e
problem

with the
use of
X-rays
involves

the use
of
consider
able

visual interpreta tion. Studies

have
shown
that the
accuracy

of the
interpretation
is
subject

to

varying

degrees

of

observer

error.

This

error

includes
the
observer's
inability

to detect
abnormal
opacities
and

interpret

them

correctly,

inter-obs

erver
variation
(due to
varying

reading
ability
between
observer

s) and
intra-obs
erver
variation.

This talk is about applying statistical

ideas as
an
alternative
method

for the
detection
of PTB,
useful for

the
lesser
experien
ced

medical
staff . In
particular
a

graphical method involving wavelet

coefficients on the feature vector

(WFV)
has been
propposed
for the

detection and discrimin ation of

Mycobac terium Tubercu losis

(MTB)
and lung
cancer
(LC).

Popular discrimin ation procedur

es use

the

Linear

Discrimin

ant Function (LDF()) and the

Quadrati c Discrimin ant

Function (QDF()). These discrimin

ation
procedur
es do not
reconsid

er the
members
hip
status of

misclassified
cases.
This

paper

proposes

a novel

sequenti

al discrimin ation procedur

e
involving
the MRA
of the

WFV

(vector).

The

results

indicate

that the

proposed

new

procedur
e, after
reconsid
ering

misclassified
cases,
can

significan

tly

increase

the rates

of correct
classifica
tion.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51

Monito

ring

PTB

Disease

by

Compari

ng

Digital

Chest Radiogr aph Norliza

Mohd Noor, Universi ti

Teknolo

gi

Malaysia

■

Date:

22 nd

May

2007

Venue: Multime dia Universi

ty

Abstract:

Two
million
deaths
are due

to MTB

annually.

Global

TB

incidence

is still

growing

at 1% a

year. To
eliminate
the
problem

of TB the

WHO

makes

several

suggesti ons, in particular “Giving

access to quality TB diagnosis

and
treatment
for all”.

An

important
ingredient
t for
diagnosis

of TB is
the
comparis
on of a

series of
chest
X-rays.

If

treatment

is

successful

ul, the

presence
of
“snowflak
es” will

decrease
or
diminish
with each

subsequ
ent (new)
image.
In other

words it

is

important

that we

have a
reliable
method
of

comparin
g X-ray
images.
Several

problems
have to
be faced
before

any
comparis
on may
be made.

Firstly,
the
diseased
area or

snowflakes do not
subscribe to any

fixed

dimensio

ns

(shape,

size, or
orientatio
n). As
such two

images

may only

be

compare

d by their

direct

difference

e since

no

obvious

feature

may be

consider
ed. In
particular
if

treatment

is

successful

ul, the

incidence of snowflakes shows

a
reduction
in the
second

image.

Any

measure

of this

reduction

may be

used to

indicate

success of treatment . Digital

images of chest radiograp h taken

at
different
time
points

may be
compare
d to
investigat

e the
effect of
treatment
on

mycobac
terium
tuberculo
sis

(MTB)

patients.

One

method

of
comparis
on is that
of

visually

locating

“snow-fla

kes”

which
should
decrease
in area or

size with
each
subsequ
ent

image.

This

paper

propose

a more
objective
method;
the

comparison of image histograms

ms

whereby

a

leftward

shift of the histogra m

indicates
a positive
effect of
treatment

. The comparison of two histograms

ms is
equivale
nt to
either

comparin g the correspo nding

box-plots or the correspo nding set

of
percentil
es.
However,

before
the
comparis
on is

made the

images

need to

be

registerere
d and
resized.
The

results of
this study
show
that the

proportion of percentiles (from

histogra
m) can
be used
as an

indicator
of
treatment
effect (or

patient's
progress)
. Further
the

correlations
are
shown to
be the

best similarity measure to

indicate

the

quality of

image

registrati

on.

Finally,

this study

also
shows
that a
combinat

ion of registrati on and resizing

can

improve

the

pair-wise

comparis on.

Image Retrieval: Content-

and Semanti cs-base d

Approac

h

Dr.

Moham

mad

Faizal

Ahmad

Fauzi,

Multime dia Universi ty.

Date: 3^r

d

April

2007

Venue: Universi ti Teknolo

gi Malaysia , KL

Abstract:

In

conventi

onal

image
retrieval
systems,
images

are
indexed
by text,
known as

the
metadata
of the
image,

such as

the file

name,

the date

it was
produced
, the type
of the

image and a manually annotate

d
descripti
on on the
content

of the
image
itself.

This kind

of
system,
known as
text-base

d image
retrieval
(TBIR),
suffers

from
some
weaknes
ses,

namely
the
amount
of labour

required
to
manually
annotate

every
single
images,
as well

as the
differenc
e in
human

perceptio
n when
describin
g the

images,
which
might
lead to

inaccura
cies
during
the

retrieval

process

later.

Hence,

there is a
need for
a better
system

and
content-b
ased
image

retrieval
(CBIR),
where
the

images

are

describe

d

automati
cally
based on
the

character
istics of
their
visual

content
is a
popular
choice.

In a
CBIR
system,
the

image
descripti
on is
done

automati
cally, and
is also
consisten

t, which
in theory
will solve
the two

drawbac ks of TBIR system.

However

CBIR

does

have its

disadvan
tages,
one of
which is

its

inability

to

provide

the semantic s or the meaning

of the
images,
popularly
known as

the
semantic
gap. This
brings

the semantic s-based image

retrieval
(SBIR)
into the
picture.

In SBIR,
the main
goal is to
obtain

the
semantic
s of the
images,

by
means of
automatic
c image

annotation,
before they are
used as

keywords
for
retrieval
purpose.

The SBIR and TBIR hence

use the
same
approach
to image

retrieval,
with the
differenc
e being

TBIR

needs

human

assistanc

e while
SBIR is
fully
computer

generate

d, which,

like

CBIR,

should

solve the

two

drawbac

ks of the
TBIR
system.

Technical Talks

Written by Administrator

Monday, 01 February 2010 02:35 - Last Updated Monday, 13 May 2013 07:51
