ECVision

Research Coordination

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Outline

Overview of activities

- ICVS 03

- Research Roadmap

Status of deliverables

Required actions

ICVS 03

Graz the 31 march to 3 April 2003

109 Papers submitted

22 accepted for podium, 30 for poster

~120 paid registrants

Sessions on Cognitive Vision, Architectures, Performance Evaluation, programming methods and video annotation

Four invited talks.

Five Workshops

Two Tutorials

ICVS 03

Workshops on

- Performance Evaluation (PETS - ICVS)
- Control Architectures (VSCA)
- Attention and Performance in Computer Vision (WAPCV)
- In-Vehicle Cognitive Computer Vision Systems (IVCCVS)
- Spectral Imaging (WSI)

Tutorials:

- Subspace Methods for Visual Learning and Recognition
- Psychological Aspects

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ICVS 03 Best Paper Prizes

Best Paper on Cognitive Vision

Implementing the Expert Object Recognition Pathway

Bruce Draper, Kyungim Baek, Jeff Boody

Best Paper on Vision Systems

Dynamically Reconfigurable Vision-Based User Interfaces

Rick Kjeldsen, Anthony Levas, Claudio Pinhanez

4 April 2003

ICVS 05 - East Coast of US (Providence Rhode Island?)

General Chair:	Rick Kjeldsen
Local Chair:	Claudio Pinhanez or Rick Kjeldsen
Program Co-chairs:	Monique Thonnat
	Bruce Draper
Workshops:	Hillary Buxton

A research roadmap for CV

Objective

- To define the scientific domain of Cognitive Vision
- To document current methods and problems

Context

- A long term vision for Cognitive Vision
- Support for FP 6 call Cognitive Systems

4 April 2003

Research Roadmap Contents

Six Chapters:

1. The Domain of Cognitive Vision

2. Fundamental concepts for Cognitive Vision

3. The potential for innovation in Cognitive Vision

4. Applications and Potential Markets

5. Fundamental Research Problems

6. Recommendations

4 April 2003

Research Roadmap Contents

Six Chapters:

1. The Domain of Cognitive Vision

    1.1 Cognitive Systems

    1.2 Cognitive Computer Vision

    1.3 Cognitive Vision and Computer Vision

    1.4 Cognitive Vision and Artificial Intelligence

    1.5 Enabling Technologies

Research Roadmap Contents

Six Chapters:

2 Fundamental Concepts for Cognitive Vision

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Research Roadmap Contents

Six Chapters:

3. The potential for innovation in Cognitive Vision

    3.1 The nature of innovation

    3.2 The virtuous cycle of innovation.

    3.3 The phases of innovation

Research Roadmap Contents

4. Applications and Potential Markets

    4.1 Autonomous (Mobile) Systems and Robotics

    4.2 Industrial Inspection and Industrial Robotics

    4.3 Video Surveillance

    4.4 Man-machine interaction

    4.5 Smart environments and ambient intelligence

    4.6 Mapping on demand

    4.7 Indexing Photo databases and Content analysis of images

    4.8 Film, TV and Entertainment

    4.9 Aerial and Satellite Image Analysis

    4.10 Aerospace

    4.11 Medical imaging and life sciences

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Research Roadmap Contents

<u>Six Chapters:</u>

5. Fundamental Research Problems

    5.1 Model Learning

    5.2 Knowledge Representation

    5.3 Recognition, Categorization and Estimation

    5.4 Reasoning about Structures and Events

    5.5 Architecture and Visual Process Control

    5.6 Performance Evaluation

    5.7 Self Diagnosis

            (most of these remain to be written)

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Research Roadmap Contents

<u>Six Chapters:</u>

6. Recommendations

Roadmap timetable

Invite "dreams" contributions

- Max 4 pages
- Deadline ~1 September 02

Workshop on research challenges: December 2002

Draft roadmap : January 03

Planning Meeting (Amsterdam): February 2003

Version 2.5 for distrubution at ICVS 03. (April 03)

Complete Version for June 2003

Presentation at Dagstuhl workshop on research challenges

- October 2003 (Nagel & Christensen)

White papers

AI in computational vision

- Outline the potential use of AI methods in cognitive vision

- Motivate the need for AI in cognitive vision

Computational vision in AI

- Outline the research challenges that cognitive vision offers to AI

- Motivate the involvement of AI researchers in vision

4 April 2003

Special issue on Cognitive Vision

Special issue of AI magazine (AAAI)

- Cognitive vision research
  - Received only two submissions?

4 April 2003

Deliverables

TA1.1.6   Workshop & workshop proceeding/report

(will describe ICVS and workshops)

TA1.2.6   Position paper

TA1.3   Advances in computer vision

TA1.4   Advances in artificial intelligence

TA1.5.6   White paper on cognitive vision research

TA1.6   Benchmark applications

TA1.7.6   Research roadmap

(advancing well)