Advanced Vision Module

- **Overview:**
  - *"Intelligent processing of visual information"*
  - recognition / navigation / inspection in 2D/3D
- **Context (requirements):**
  - Introduction to Vision and Robotics (IVR)
  - 1st/2nd year maths (geometry, matrix algebra, trig.)
  - Basic understanding of physics and programming concepts

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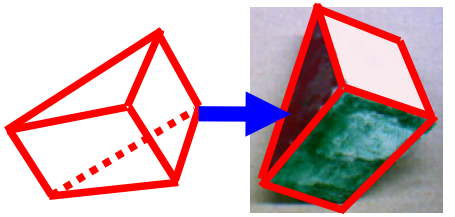
What can you do with vision ?

- 3D content { games | movies | visualisation }

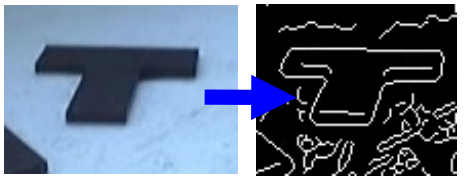



- Surveillance

- Traditional Engineering Problems
  - inspection / quality control



- Image Processing
  - noise removal, enhancement, etc.



Overall: processing visual data

Syllabus

- 6 vision systems:
  - Orthographically viewed non-rigid 2D objects
  - Orthographically viewed rigid 2D objects
  - 3D objects from range data (recognition)
  - 3D objects from stereo vision (recognition)
  - Video tracking (2D)
  - Video-based behaviour recognition (2D)
- Low, Middle & High Level Vision
  - e.g. pixels -> edges -> 2D / 3D part recognition

Activities

- 16 Lectures
  - lecture notes on-line + video
  - background reading (on-line + textbook)
- 2 Practicals (IPAB lab AT 3.01)
  - 2 programming (groups of 2, Matlab)
- Assessment
  - 2 hour examination (70%)
  - 2 practical assignments (15% each)

Questions - ?

Advanced Vision (AV)
Semester 2 – M/Th 2-3 @ DHT LTA

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