Computational perception using multimodal sensors

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Frequency
Every 2 years

Remarque
Every 2 years. Next time: Spring 2020.

Summary
The course will cover perceptual modalities in computers, models for analyzing people (representation, detection and localization, segmentation, tracking, recognition).

Content

Keywords
Artificial perception, human representation, multi-modalities, audio, video, probabilistic model, graphical models.

Learning Prerequisites
Recommended courses
Undergraduate-level knowledge of linear algebra, statistics, image and signal processing.

Assessment methods
• written exam
• homeworks (includes practical work)
• paper presentation

Resources

Bibliography

• C. Bishop, Pattern Recognition and Machine Learning, Springer, 2008
• M. Brandstein and D. Ward (eds.), Microphone Arrays, Springer, 2001
• D. Forsyth and J. Ponce, Computer Vision: a Modern Approach, Prentice Hall, 2002
• B. Gold and N. Morgan, Speech and Audio Processing, Wiley, 1999
• M. I. Jordan (ed.), Learning in Graphical Models, MIT Press, 1999

The library recommends:

• "Computer vision : a modern approach / David A. Forsyth, Jean Ponce ; international ed. contrib. by
  Soumen Mukherjee ... [et al.]". Year:2012. ISBN:978-0-13-608592-8
• "Microphone arrays : signal processing techniques and applications / Michael Brandstein ...
• "Speech and audio signal processing / Ben Gold, Nelson Morgan, Dan Ellis ; with contrib. by Hervé

Ressources en bibliothèque

• Pattern Recognition and Machine Learning / Bishop
• Microphone Arrays / Brandstein
• Speech and Audio Processing / Gold
• Learning in Graphical Models / Jordan
• Computer Vision: a Modern Approach / Forsyth