Abstract

This paper describes a technique of real time head gesture recognition system. The method includes Gaussian mixture model (GMM) accompanied by optical flow algorithm which provided us the required information regarding head movement. The proposed model can be implemented in various control system. We are also presenting the result and implementation of both mentioned method.

References

- Sujitha Martin, Cuong Tran, Ashish Tawari, Jade Kwan and Mohan Trivedi &quot;Optical


- Thanarat Horprasert, David Harwood, and Larry S. Davis, “A Statistical Approach for Real-time Robust Background Subtraction and Shadow Detection”; 

- Michael B. Holte, Cuong Tran, Mohan M. Trivedi, , and Thomas B. Moeslund, “Human Pose Estimation and Activity Recognition From Multi-View Videos: Comparative Explorations of Recent Developments”; IEEE Journal Of Selected Topics In Signal Processing, Vol. 6, No. 5, September 2012


- Tushar Agrawal Subhasis Chaudhuri “gesture recognition using position and appearance features”;

- Berthold K. P. Horn and Brian G. Ruhnck, “Determining Optical Flow”; Artificial Intelligence 17 (198 I ) 18. 5-203


- Darun Kesrarat and Vorapoj Patanavijit “Tutorial of Motion Estimation Based on Horn-Schunk Optical Flow Algorithm in MATLAB”; Review Article

- Oleksiy Busaryev, John Doolittle “Gesture Recognition with Applications”; CSE 634 Class Project Report


- Rafael A. B. de Queiroz, Gilson A. Giraldi, Pablo J. Blanco, Raúl A. Feijóo, “Determining Optical Flow using a Modified Horn and Schunck’s Algorithm”; IWSSIP 2010 - 17th International Conference on Systems, Signals and Image Processing.

- Louis-Philippe Morency, Trevor Darrell “Head Gesture Recognition in Intelligent Interfaces The Role of Context in Improving Recognition”;
- E. Kollorz and J. Hornegger, "Gesture recognition with a time-of-flight camera"; Workshop in Conjunction with DAGM'07
- Sebastian Loehmann," Sneaking Interaction Techniques into Electric Vehicles"; AutomotiveUI'12, October 17-19, Portsmouth, NH, USA
- Chris Stauffer, W. E. I Grimson , "Adaptive background mixture models for real-time tracking"; The Artificial Intelligence Laboratory Massachusetts Institute of Technology
- Subra Mukherjee ,Karen Das," An adaptive gmm approach to background subtraction for application in real time surveillance"; ISSN: 2319 - 1163 Volume: 2 Issue: 1 25 – 29

**Index Terms**

Computer Science  
Artificial Intelligence

**Keywords**

Head gesture  
GMM  
background subtraction  
optical flow