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| **DOCTORAL CANDIDATE:** | Fahad fazal elahi Guraya |
| **DEGREE:** | Philosophiae Doctor |
| **FACULTY:** | Mathemetics and Natural sciences |
| **DEPARTMENT:** | Department of Informatics |
| **AREA OF EXPERTISE:** | Video processing |
| **SUPERVISORS:** | Dr. Faouzi Alaya Cheikh, Dr. Fritz Albregtsen |
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**DISSERTATION TITLE:** *Visual saliency models for video surveillance applications*

The past decade has witnessed a rapid growth in the use of video cameras for many purposes including surveillance. Surveillance videos are used to detect abnormal activities/events in the surveillance area and to trigger the alarm in case of danger or abnormal activity. Surveillance cameras are usually located in areas with lots of activity such as train stations, airports, market places, shops and banks to name a few. Typically the videos from these surveillance cameras are monitored by human operators sitting in front of a number of monitors and supervising all the activities on all monitors. Such a surveillance solution is labor intensive, which in general means it is rather costly and prone to human errors. In the recent years, video analysis has progressed a lot making it possible to automate algorithms to detect suspicious or alarming activities.

The focus of this thesis is to develop visual saliency models and use them in salient region detection algorithms for surveillance applications. We are concerned with videos in this thesis, we started by studying the importance of motion for visual saliency. Therefore, we have worked on the Continuously Adaptive Mean Shift (CAMSHIFT) object tracking algorithm. We have proposed an improved version of the CAMSHIFT algorithm with the incorporation of motion information in the existing algorithm. This gave us an insight into how we could use motion information found in a video to improve object tracking. Taking these results into consideration, we worked on a visual saliency model where we included motion features to improve the saliency results.