LIST OF FIGURES

1. 1.		3
1.	A proposed scheme of video replay attack detection on the face authentication system	3
1.	·	4
2.		15
2.	•	16
2.	•	16
2. 2.	4 Commonly used discrete approximations to the Laplacian operator	17
	Sobel applied on a; (e) LoG applied on a; and (f) Canny applied on a	17
3.	· ·	19
3.		20
3.	0.1	21
3.	4 (a) Example of the good morphology images; (b) Example of the bad morphology images	99
3.		$\frac{22}{23}$
3.	a. Sobel on image with complex background; b. binary image of image a;	
3.	c. matching model with image b; d. The image of segmentation result 7 Determining stable frame duration process	$\frac{24}{25}$
3.	B Determining stable frame of several pixel on Client003 (IDIAP Replay-	
	Attack Database)	26
3.		28
3.	10 Definition comparison of foreground and background	29
4.	I IDIAP Replay Attack Database	31
4.	2 Synthesized database	33
4.		
	that was not fit with the object	37
A		
	general model	42
В	1 Example of the motion pattern result $(Max_{j,k})$ of a video from print photo	
	(static video)	43

B.2 Example the motion pattern result $(Max_{j,k})$ of a real video 44