

Homework 3 : Motion Estimation & Compensation

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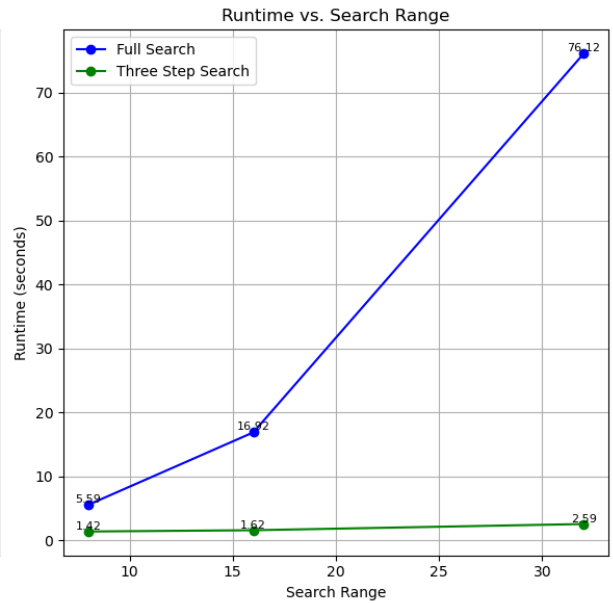
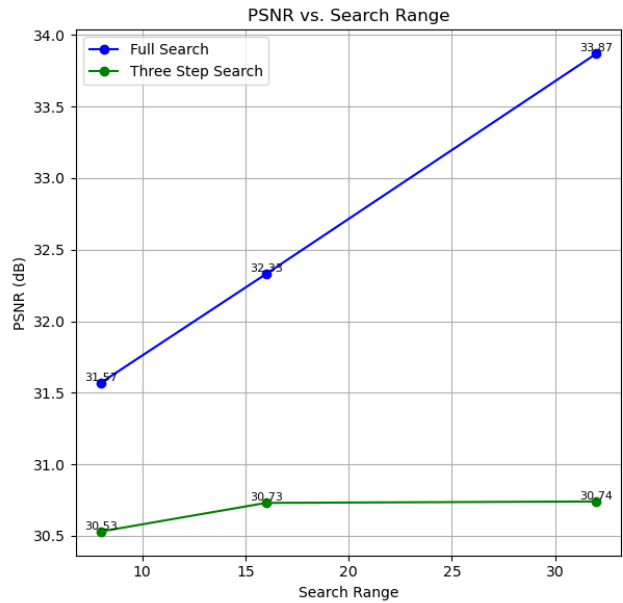
Student ID: 311553060

Spec:

- Motion estimation (ME)
 - Block size: 8x8
 - Search range: $[\pm 8]$
 - Full search block matching algorithm
 - Integer precision
- Motion compensation (MC)
 - Save the reconstructed frame (after MC) and the residual
- Search range:
 - Compare the results (in PSNR and runtime) with different search ranges ($[\pm 8]$, $[\pm 16]$, $[\pm 32]$).
- Three-step search
 - Compare the results (in PSNR and runtime) with the Full search algorithm.
- Deadline: 2023/10/28 1:19 PM
- Upload to E3 with required files :
 - VC_HW3_[student_id].pdf: Report PDF
 - VC_HW3_[student_id].zip: Zipped source code (C/C++/Python/MATLAB) and a README file

Quantitative Results

	Search Range : 8		Search Range : 16		Search Range : 32	
	PSNR	Runtime(s)	PSNR	Runtime(s)	PSNR	Runtime(s)
Full Search	31.57	5.59	32.33	16.92	33.87	76.12
Three Step	30.53	1.42	30.73	1.62	30.74	2.59



Qualitative Results

Search Range : 8

Full
Reconstructed



Full Residual



Three Step
Reconstructed



Three Step
Residual



Search Range : 16

Full
Reconstructed



Full Residual

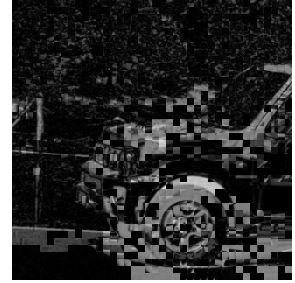
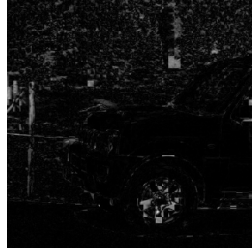


Three Step
Reconstructed



Three Step
Residual





Search Range : 32

**Full
Reconstructed**

Full Residual

**Three Step
Reconstructed**

**Three Step
Residual**

