

FALL 2025 EEP 596: Computer Vision

Homework 5 REPORT

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1) What effect does the learning rate have on the result?

- A small learning rate causes slow but stable convergence.
- Large learning rate (if too large) updates overshoot the valley and the algorithm diverges instead of converging

2) Can you find a learning rate parameter that causes divergence?

- For the paraboloid, divergence occurs for learning rates ≥ 1
 - Example: $\text{lr} = 1.0$
 - $\text{sdg}(0, 0) \rightarrow (0, 0)$