

02 Conditioning and control

Figure 1 coordinate 2 | Subitems 07, 08, 09

Machine learning

07 Conditional

Condition + noise -> samples
Select a conditional distribution
Keep given context, vary detail
Test adherence and diversity

08 Text-conditioned

Text -> new visual samples
Words specify desired content
Keep named attributes / relations
Test response to prompt edits

09 Controllable

Chosen factor -> steered sample
Change one requested property
Fix other inputs where possible
Test control and unwanted drift

Computer vision

— SPADE layout to scene

Street layout -> scene image
Condition on semantic regions
Keep layout; vary appearance
Test layout fit and realism

— Imagen text to scene

Text -> generated scene
Example: red cubes, blue ball
Target count, color, position
Test object / relation accuracy

— ControlNet spatial steering

Pose / edges / depth -> image
Guide the generated structure
Vary appearance, retain control
Test alignment / off-target drift

Medical image analysis

— MAISI anatomy to CT

Organ masks + spacing -> CT
Generate a synthetic 3D volume
Target requested anatomy
Test masks and CT plausibility

— RoentGen text to X-ray

Radiology prompt -> radiograph
Generate, not retrieve, an image
Target findings and anatomy
Test independent finding review

— MAISI anatomical steering

Selected organ mask -> CT
Anatomy control, not causation
Target the requested mask shape
Test changed / other structures