Accuracy

Accuracy is the degree to which a **measured or executed result** matches the **true or intended value**. In neurosurgical practice, it refers to the spatial closeness between a **planned target** and the **actual result** achieved during surgery or imaging.

Examples in Neurosurgery

- Distance between planned and implanted DBS electrode
- Alignment of image-guided biopsy needle to lesion center
- Registration error in neuronavigation systems

Common Accuracy Metrics

Metric	Description
Euclidean distance	3D distance from planned to actual coordinates
Radial error	Lateral deviation from the target (common in stereotaxy)
Targeting error (mm)	Average deviation from planned trajectory
% within tolerance	Percentage of cases within acceptable error margin (e.g., <2 mm)

⚠ Accuracy vs. Precision

- **Accuracy** = How close to the target
- **Precision** = How consistent multiple measurements are

> Example: A robot that hits 3 mm off the target every time is **precise but not accurate**.