SeleneX Summary

Objective. Build a mini-prototype that fuses ovarian ultrasound images with synthetic biomarkers (Age, CA-125, BRCA) to predict benign vs. malignant tumors using explainable, lightweight models.

Risks. Synthetic CA-125 cutoff may cause bias; small dataset risks overfitting; potential case leakage across splits.

Two-line Solution. We train image-only, tabular-only, and fused models with early stopping on ROC-AUC, apply augmentation/regularization, and evaluate with ROC/PR curves and confusion matrices. A Streamlit app accepts an image plus biomarkers and returns a calibrated probability with appropriate disclaimers.