About Me



NAME

MUTLU METE

TITLE

Associate Professor, Information Science

YEARS AT UNT

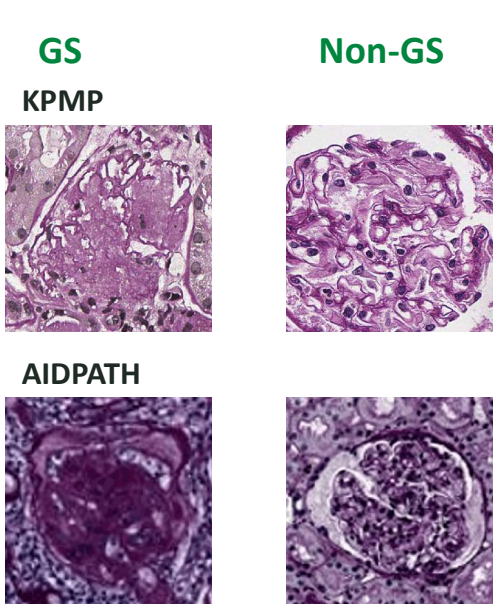
3 years

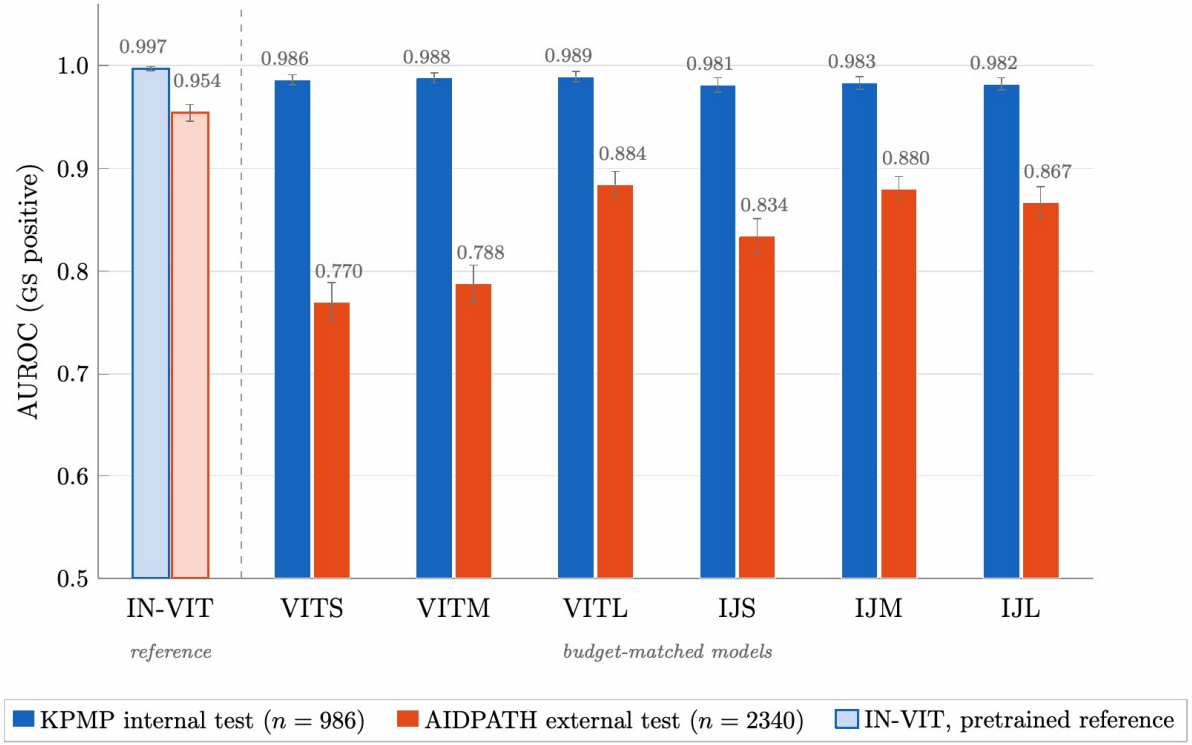
RESEARCH FOCUS AREAS

- **AI in medical imaging,** dermoscopy, histopathological and fMRI image analysis
- **Machine learning,** EEG and fMRI models for brain disorders
- **Health informatics,** COVID-19 and transplant outcome prediction
- **Bioinformatics,** biological networks and RNA structure

Glomerulosclerosis Classification

Seven ViT-based models: supervised training vs. I-JEPA self-supervised pretraining, with 2, 4 and 8 hours of local training. Training: 6,587 KPMP patches. External test: 2,340 AIDPATH images.

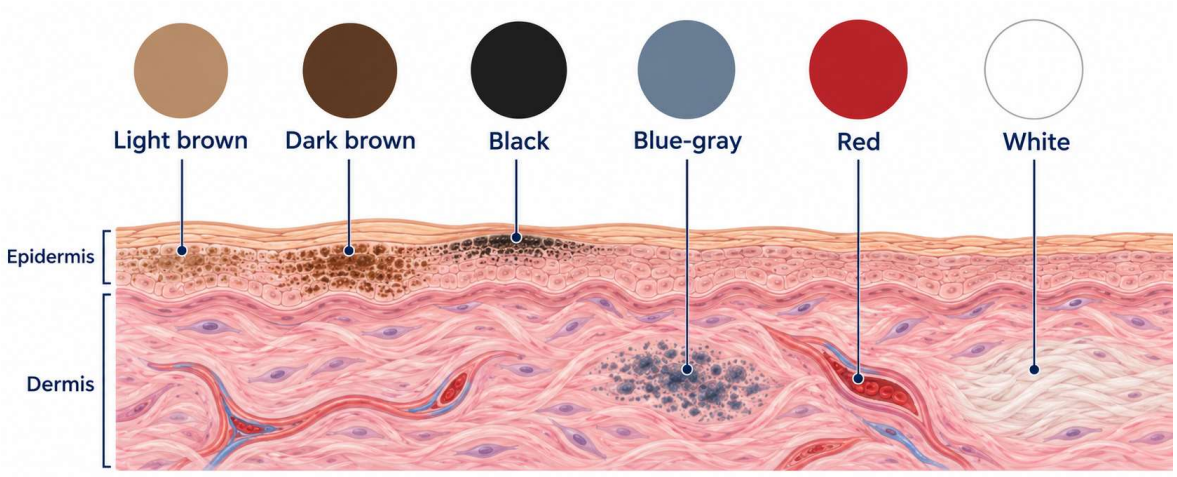


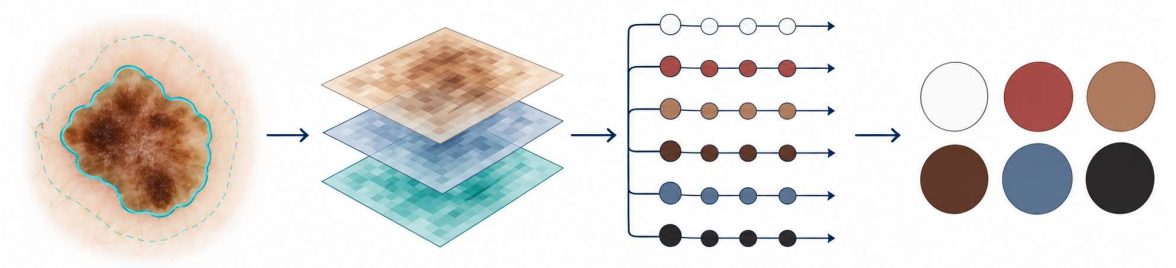


Supervised training closed the gap by 8hr

Colors of Melanoma

Detecting six clinical colors in dermoscopy images





Research goal

Make color assessment more consistent to support melanoma evaluation.

Study design

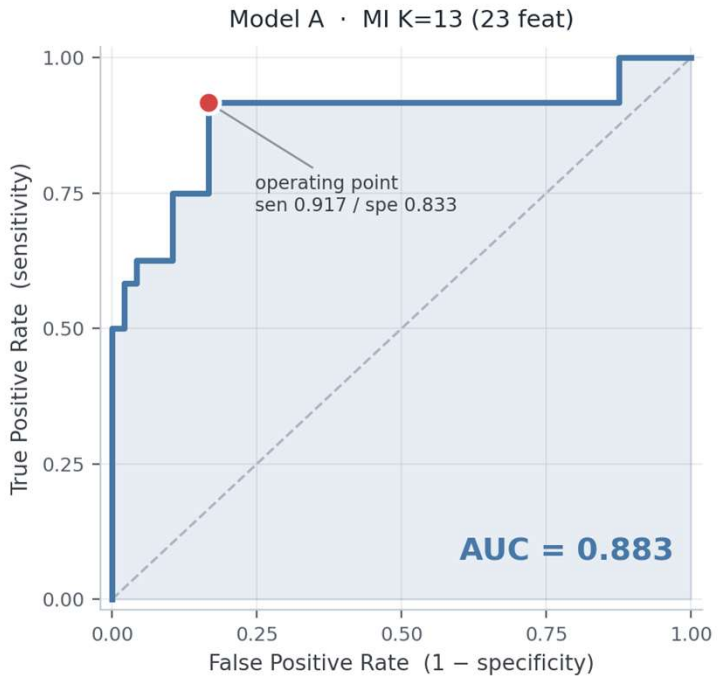
200 PH² images, including 40 melanomas, with expert color labels.

28 color and texture features feed six neural networks. Each lesion can receive multiple color labels.

Color alone does not diagnose melanoma.

Predicting Extravascular Hemolysis

Earlier risk prediction could support closer monitoring and more timely treatment review. Identify clinically significant EVH in PNH patients receiving C5 inhibitors.



Study and method

72 patients, including 24 with clinically significant EVH. Leave-one-out validation across 72 folds.

Mutual information selects 13 of 23 features within each fold. A 16–4–1 neural network predicts csEVH.

22 of 24 positive cases detected

Sensitivity 91.7% and specificity 83.3%
2 false negatives and 8 false positives

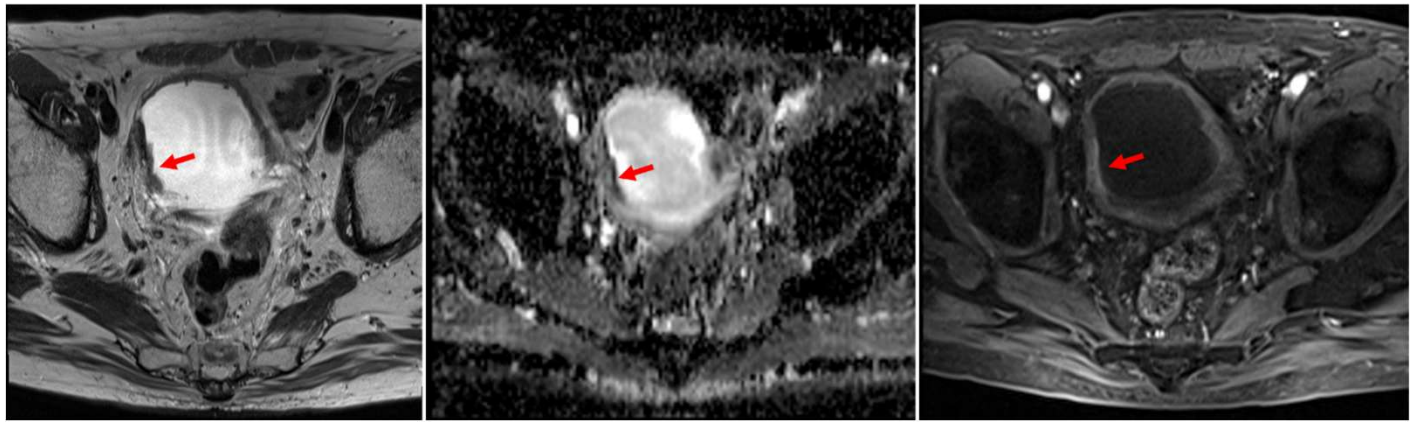
Top SHAP features: platelet count and MCV.

Earlier risk prediction could support closer monitoring and more timely treatment review.

Estimates may be optimistic: model search and threshold tuning used the same cohort.

MRI for Bladder Cancer Staging

Muscle invasion changes treatment decisions. Biopsy can miss invasive disease, while MRI interpretation varies across readers.



Representative MRI views; arrows mark the bladder lesion

0.77

Best AUROC

Decision tree using combined T2, ADC and T1 radiomic features

52 patients: 24 muscle-invasive and 28 non-muscle-invasive

Radiomics quantifies MRI intensity, shape and texture to support more objective prediction of muscle invasion.

Single-institution study; larger, multi-center validation is needed.