UNIVERSITY of MARYLAND
SCHOOL OF MEDICINE

Center for Advanced Imaging Research (CAIR)
Imaging Science Seminar Series

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Beyond AUC: saliency, precision, and the long-tail problem in trauma CT AI

Date: Friday, April 3, 2026

Time: 12:00 – 1:00 p.m.

Location: Frenkil Lecture Hall, Health Sciences Research Facility III

Zoom link is available for those who cannot attend in person:

https://umaryland.zoom.us/j/94589322149

Faculty Host: Thomas Ernst, PhD

Abstract: AI models in trauma imaging often achieve high AUC yet perform poorly in real clinical settings, where critical findings are rare, heterogeneous, and time sensitive. In trauma CT, the problem is compounded by signal dilution from low prevalence and small target to volume ratios. This talk examines the long-tail problem in trauma imaging AI and why precision, saliency, and spatially grounded supervision matter more than AUC, a deceptively high metric driven by correctly ranking large numbers of easy negatives in class-imbalanced data. The speaker will review architectural strategies including mask-guided learning, attention regularization, contrastive objectives, and synthetic data augmentation, and show how these approaches improve reliability in deployed pipelines. The discussion will also address the limitations of current foundation models for low-prevalence high-stakes tasks, and outline practical design principles for building AI systems that remain trustworthy under real clinical conditions.