

**Abstract:**

Globally, an estimated 40M diagnostic reading errors occur annually; approximately 62% can be attributed to cognitive/perceptual issues associated with complacency, underreading, and search satisfaction. AI expert systems are critical to address the exponential growth in the volume of medical images generated and help alleviate workforce:workflow inefficiencies. But outsourcing clinical decision-making can exacerbate existing errors and introduce FN/FP reporting issues. We will present image enhancement methods that transform early disease detection capabilities, applying a “Deep Learning for ALL” approach that advances pixel-level “Image Intelligence” for both humans and AI and cooperatively promotes knowledge-building, pattern recognition, and attribute extraction.