Artificial Intelligence Initiative (Aii)

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Invited Speaker

Dr. Curtis Lisle, KnowledgeVis, LLC

"Artificial intelligence and machine learning research in pre-clinical and clinical healthcare applications"

Thursday, July 24, 2025 • 3:00PM • ENGI 224 • Zoom

Abstract:
In this presentation, I will cover how I have used AI and machine learning solutions in several healthcare-related contexts. I will start by describing lung cancer research I performed along with radiation oncologists at Orlando Health. We studied the response of tumors to Stereotactic Body Radiotherapy (SBRT) and developed a novel metric for three-year overall patient survival. Next, in the context of pathology, I will present results from a collaboration on rhabdomyosarcoma (RMS) with scientists at the National Cancer Institute and the Frederick National Laboratory for Cancer Research. RMS is a rare pediatric cancer that poses a challenge for AI tools because there is little source data to learn from. I will discuss how we curated and released the first widely-available pathology dataset for RMS along with trained AI models for tissue segmentation, genetic mutation, and event-free survival. Finally, I will present early work studying the organization of cellular neighborhoods during SIV (simian immunodeficiency virus) infection using large, multi-channel microscopy images. This project is also being conducted along with the Frederick National Lab. Along the way, we will discuss emerging trends in AI as they related to applied research in healthcare.

Bio:
Dr. Curtis Lisle is the principal of KnowledgeVis, LLC, an AI (artificial intelligence), data science, imaging, and visualization company. His personal research area focuses on the application of computing technology to the natural sciences, particularly in medicine and biology. Branching out from a computer graphics background into data science applications, Dr. Lisle has been rendering, analyzing, and segmenting medical images for over twenty years and has conducted funded research projects for NIH, NSF, the US Army, and DARPA. Dr. Lisle has developed 3D Slicer modules, written image segmentation programs, trained deep neural networks for cancer detection in radiology and pathology, and installed and supported large medical image archives and analysis solutions. He also served as the software lead of Arbor, an NSF-supported biology data analysis platform currently used by the phylogenetic biology community (www.arborworkflows.com). Prior to founding his company, Dr. Lisle was the Chief Scientist in the Professional Services division of Silicon Graphics, where he focused on visualization of large datasets across multiple scientific disciplines, from microscopy tissue volumes to flight simulators. Dr. Lisle holds a Bachelors in Electrical Engineering from Georgia Tech and a Masters and Doctorate in Computer Science from the University of Central Florida. He enjoys working with domain scientists and applying his AI and software development expertise to solve challenging scientific problems.