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## **From Medical Imaging to Grain Bin Monitoring: How Electromagnetic Imaging Could Help Revolutionize Safety on Your Farm**

This research investigates the feasibility of using GrainViz Imaging to reduce harm caused by entrapment/engulfment in grain storage bins. By providing a detailed 3D image of stored grain, motivation for bin entry should be reduced, and high-risk conditions can be identified, while also providing a method for intrusion detection.

The research will first perform a situational and task analysis of the events leading to an entrapment. This includes a review into the environmental factors within a bin (rat holing, caking, fan status, auger status, etc.) and the human factors (critical response times, survival rates, rescue response times, motivations into entering a bin, etc.). With this information, we will do a critical review of GrainViz's technological capabilities and generate simulations to determine the immediate and future feasibility of preventing entrapments or alerting first responders to an entrapment event.

A review of grain-related incidents reveals that out-of-condition grain is the leading cause of entry into bins and subsequently injury risk, which can be mitigated by 3D imaging through prevention and identification of these conditions. Additionally, this technology can detect bin entry and entrapment, and initiate interventions.