



UTC Project Information	
Project Title	QUANT CR FOR TRANSFORMATIVE BRIDGE ASSET MANAGEMENT
University	The University of Georgia Research Foundation (UGARF)
Principal Investigator	Bjorn Birgisson
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Funding Source(s) and Amounts Provided (by each agency or organization)	ABC-UTC funds: \$140,000 Match funds : \$62,500
Total Project Cost	\$ 202,500
Agency ID or Contract Number	69A3552348322
Start and End Dates	January 2, 2024 - June 30, 2025
Brief Description of Research Project	<p>We propose developing an artificial intelligence (AI)-powered quantitative condition rating (QUANT CR) model which operates on a low-cost geographic information system (GIS) platform, aiding local and state bridge owners in maintenance, repair, and replacement (MRR) decisions while preserving the established inspection and condition rating practices.</p> <p>The next generation asset management system leverages the knowledge gained from 50+ years of bridge inspection practices but is predictive, forward-looking, and transformative. QUANT CR embodies insights gained from the understanding of human behavior to better assist bridge owners in decision-making. Thus, we envision QUANT CR will be operated in parallel with the existing bridge condition ratings and provide simple decision aids for bridge owners.</p> <p>We believe bridge condition ratings can be better predicted by modern machine learning methods, leveraging the historic data, evolving element condition ratings, and detailed defect items. Additionally, deep learning widely used for text recognition enables an analysis of inspectors' narratives describing bridge conditions. Lastly, computer vision and deep generative learning help bridge owners visualize the outcomes of their decisions - MRR actions/inactions, empowering bridge owners.</p>

Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The outcomes will be tracked and reported once they are identified.
Impacts/Benefits of Implementation (actual, not anticipated)	The impacts will be tracked and reported once they are identified.
Web Links <ul style="list-style-type: none">• Reports• Project website	https://abc-utc.fiu.edu/research-projects/quant-cr-for-transformative-bridge-asset-management/