AI in the Sawmill: Business to Bucking Log Technologies

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What is AI?

- Artificial intelligence (AI) is “the theory and development of computer systems capable of performing tasks that historically required human intelligence, such as recognizing speech, making decisions, and identifying patterns” (Coursera, 2026)
- AI is software that learns patterns from data, to perform tasks that typically require human intelligence, …
- To help people make better decisions.

Why Should We Care?

- What is your biggest business problem?
- Before and after computer era?
- Before and after mobile phone era?
- AI is a decision-support tool, …
- And who is the final decision maker?

Where AI Is Already Being Used

- Log inspection?
- … defect detection
- Mill operations?
- … optimization
- Business management?
- … scheduling, paperwork

LUMBER SCANNING

Lucidyne

High performance lineal scanning for planer mills

The Lucidyne scans boards lineally, using MiCROTEC Ai to grade lumber. With powerful sensors working together as one sensor set, this scanner brings more accuracy and less complication to the scanning process, minimizing downtime, reducing trim loss and increasing product consistency. Specially designed for North American grading needs.

Source: https://www.microtec.com/en-us/products/lucidyne

Source: https://www.comact.com/en/digital-technologies/smart-vision/

AI Risks

- Operational Risks
  - Incorrect predictions → bad cuts, lost value
  - Over-reliance on automation
- Data & Privacy Risks
  - Image storage of logs, yard, personnel
  - Cloud-based tools requiring data transfer
- Liability Risks
  - Wrong recommendations → financial loss
  - No audit trail for decisions
- Insurance-Relevant Risks
  - Cybersecurity vulnerabilities
  - Unauthorized access
  - Model misuse

AI Risks – Mitigation Strategies

- Keep human oversight
- Use on-device processing when possible
- Maintain data logs
- Start with low-risk workflows

AI-Enhanced Hardwood Bucking Training for Adult Workforce Development

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What Is This?

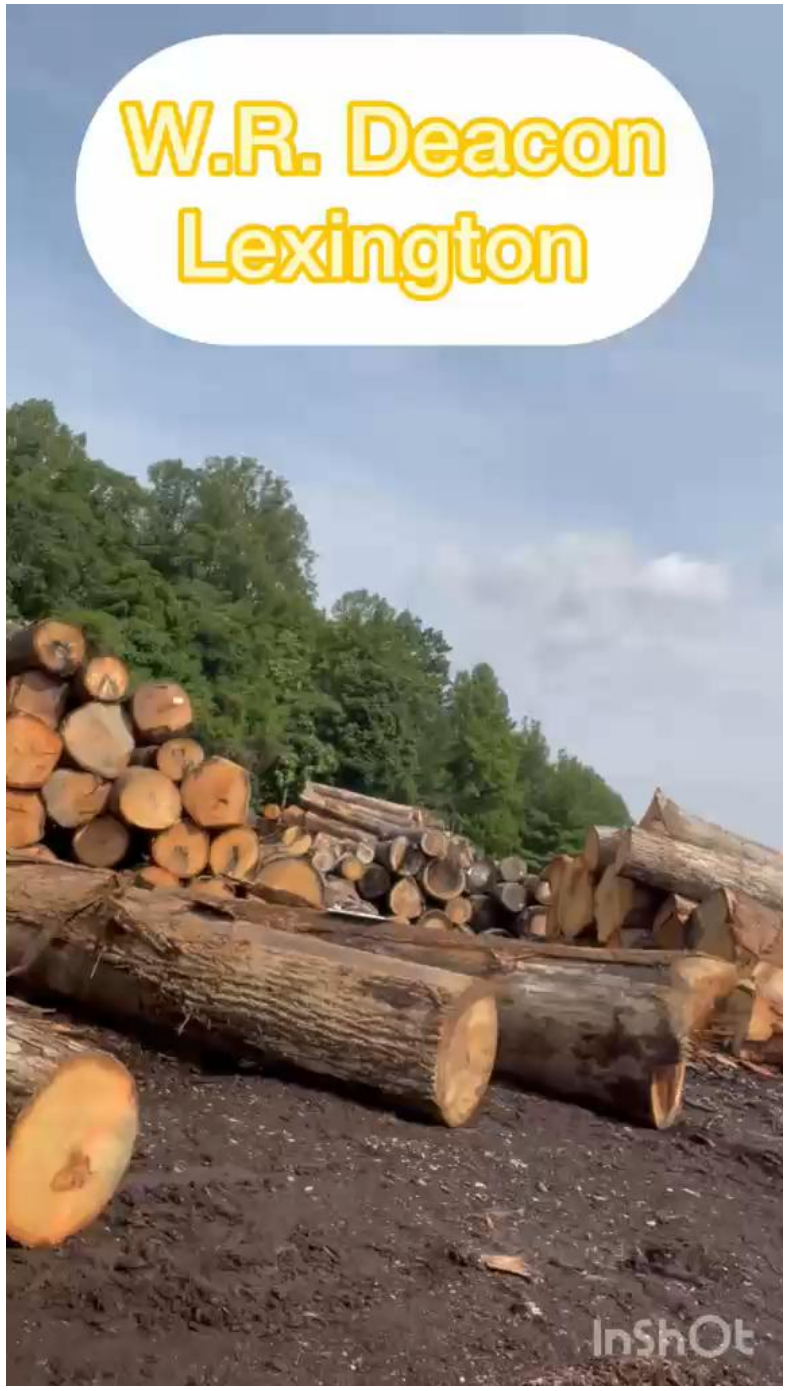
- Uses AI and computer vision to train hardwood bucking decisions
- Simulates real log stems, defects, grades, and market conditions
- Provides hands-on, scenario-based practice
- Integrated into Virginia's SHARP Logger Program
- Goal: Better bucking decisions → higher value recovery
- This is not replacing loggers' judgment—it's a training tool that lets them practice high-stakes decisions repeatedly, with feedback.

Why This Matters?

- SHARP Loggers themselves identified hardwood grading/bucking as a top need
- Bucking decisions strongly affect log value, mill fit, and landowner return
- Most loggers receive little to no formal bucking training
- Markets shift faster than training materials can update

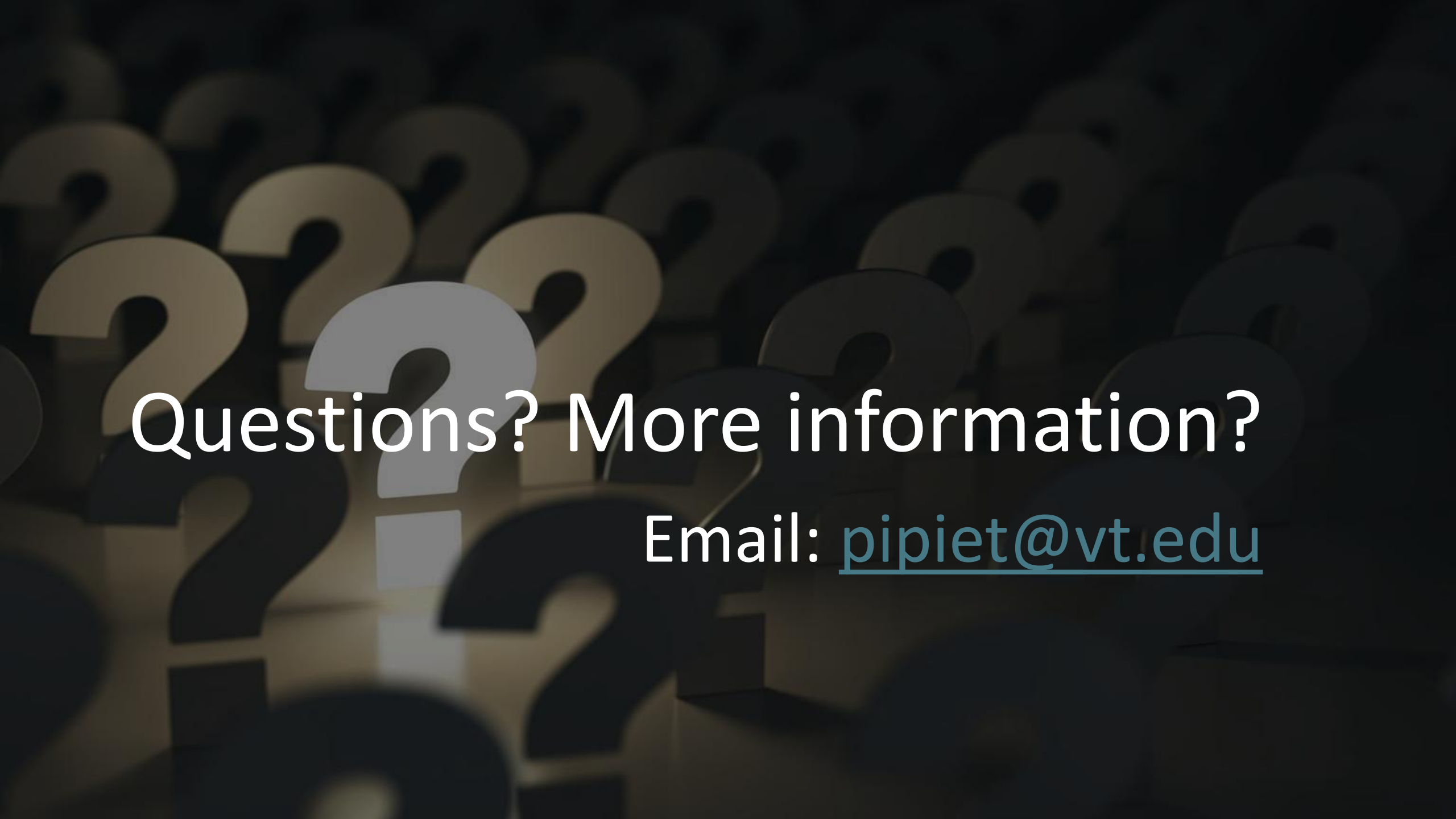
Sawmills visit

- Ontario Hardwood (Keysville)
- Turman Lumber Company (Christiansburg)
- Blue Ridge Lumber (Covington)
- WR Deacon (Lexington)
- Campbell-Rodger’s Lumber (North Garden)
- Smith Mountain Land & Lumber (Huddleston)



This Fall:

- AI tool selection and scenario framework.
- Bucking scenario library based on regional hardwood species, defect profiles, and market conditions.
- Evaluation metrics and training goals.



Questions? More information?

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