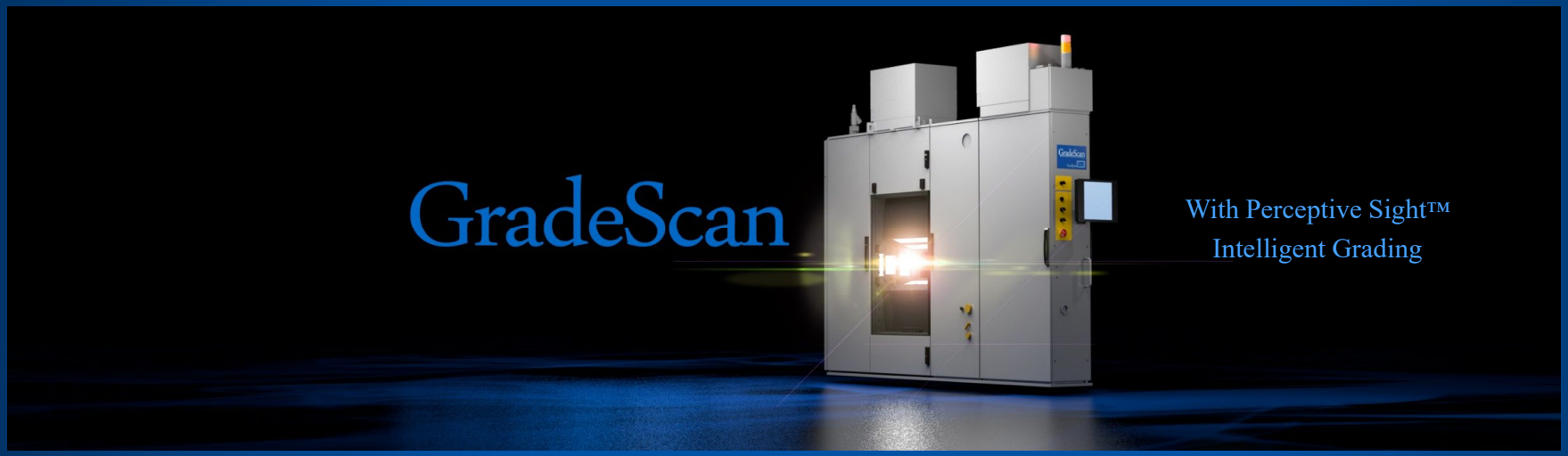
Hampton Lumber Grades Lumber with AI



Ellen Nelson

Chief Financial Officer

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Hampton – Three Mill Summary

- *Willamina*
- *Warrenton*
- *Tillamook*

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Hampton – Willamina

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Hampton – Warrenton

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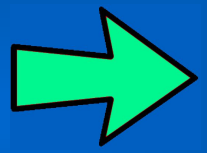
Advanced Artificial Intelligence in Lumber Detection

- Increased accuracy
- Solve the previously unsolvable
- No expert engineer input required – teach from example



- *Higher Value*
- *Timely solutions*

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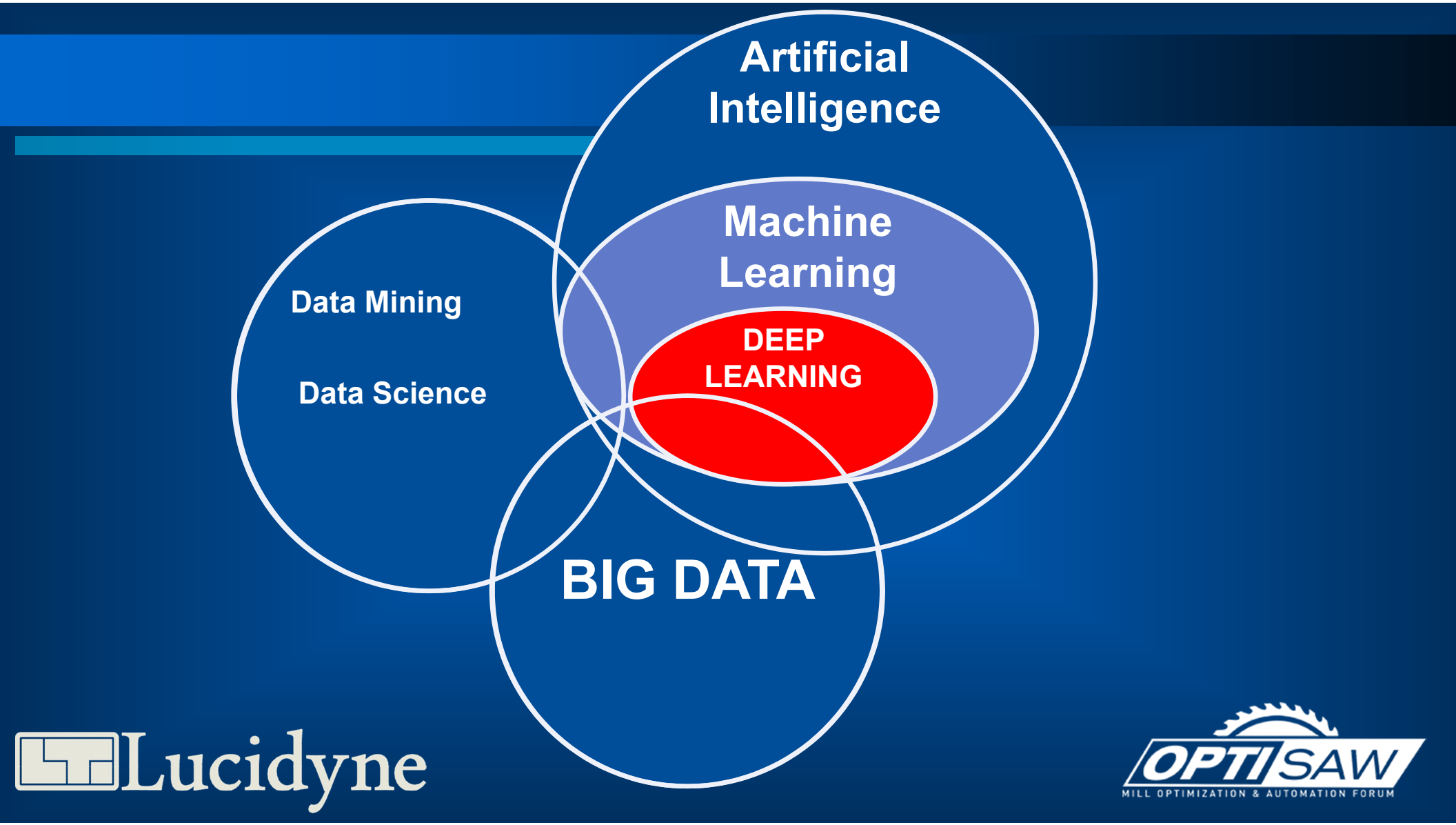

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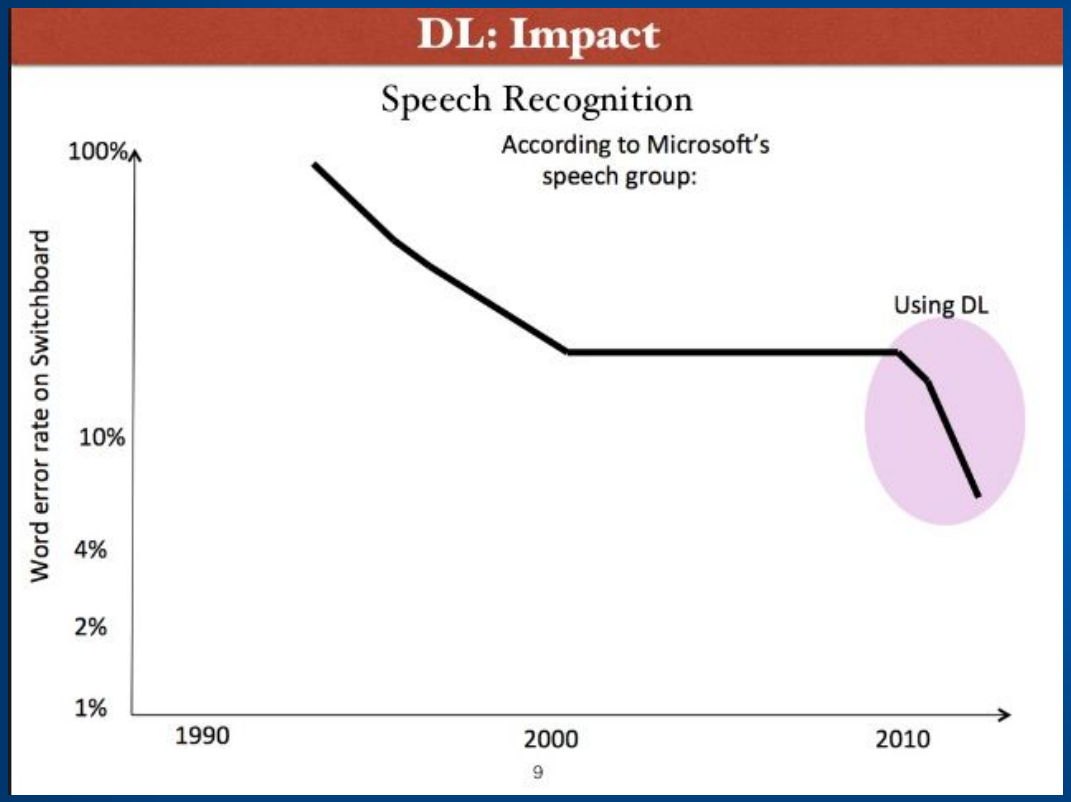
Deep Learning Impact - Speech



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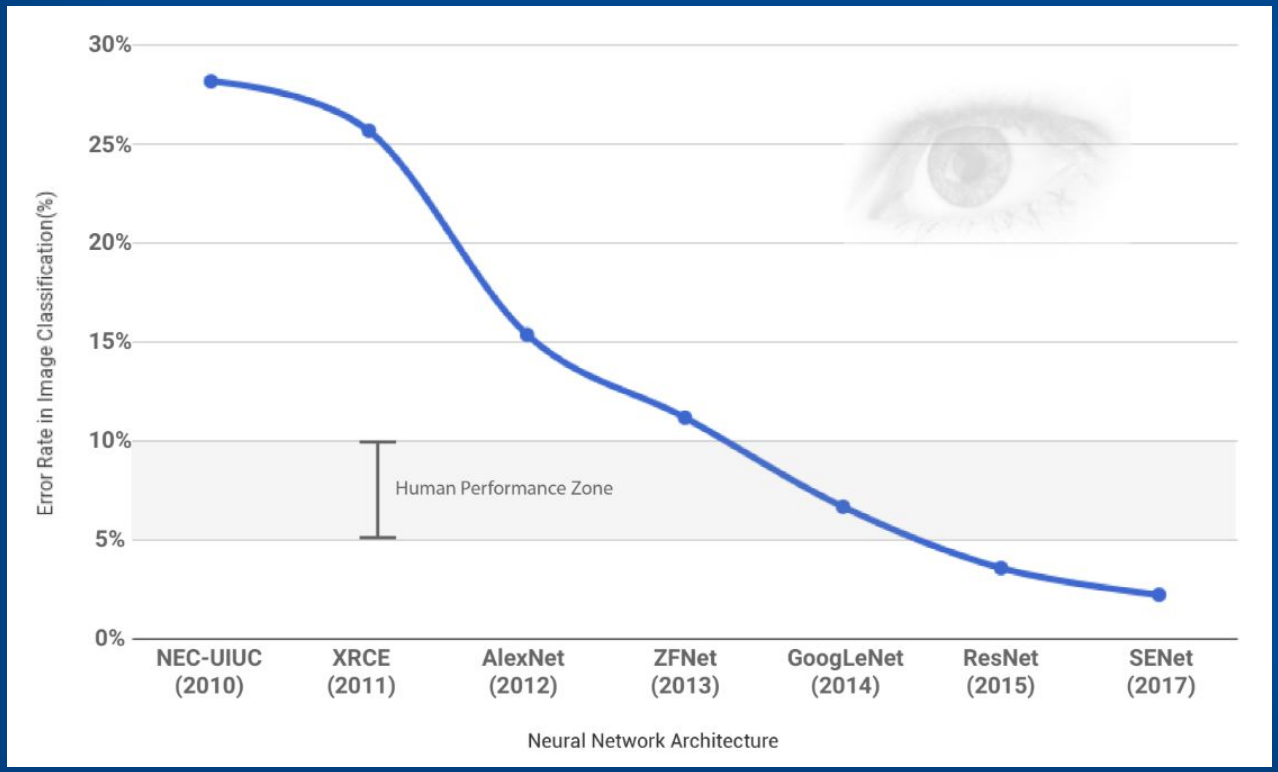
Deep Learning Impact: Images



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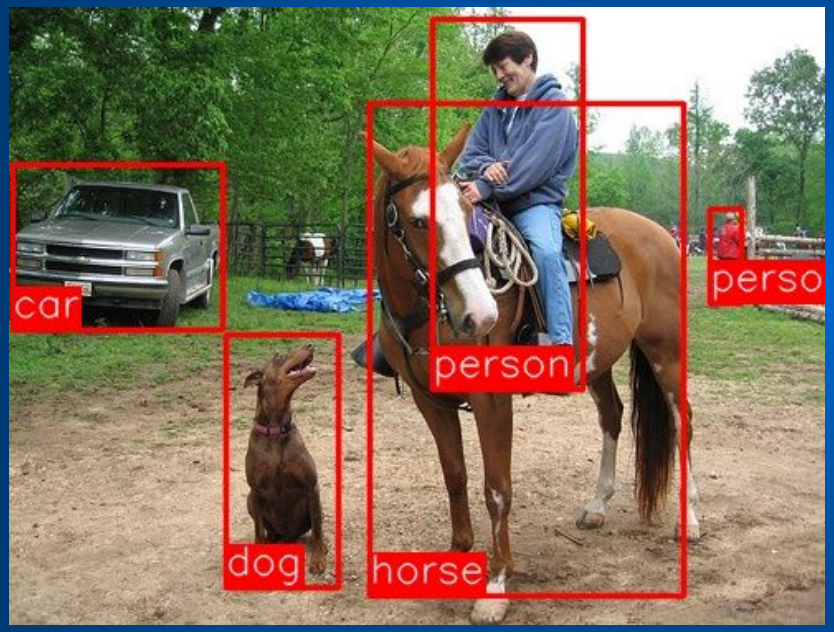
Objection Recognition vs Semantic Segmentation



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27.9 FPS

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Deep Learning Impact: Images

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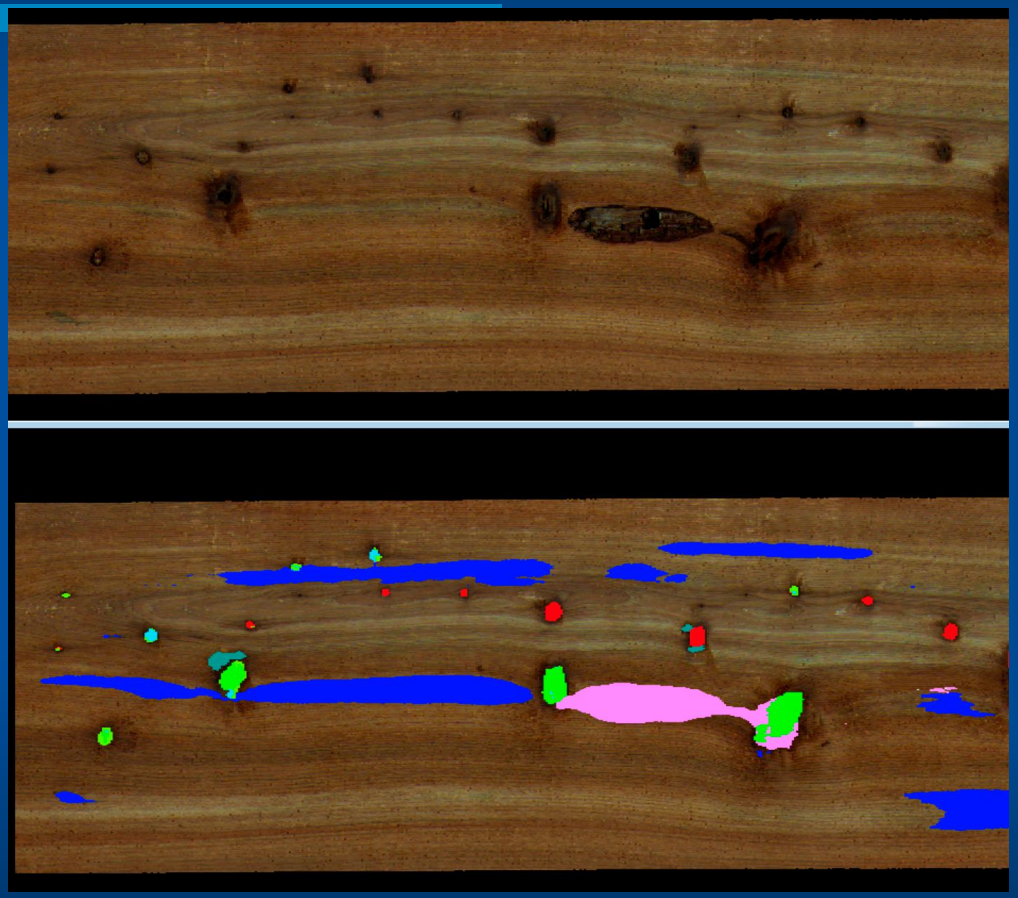
Defect Detection in Wood



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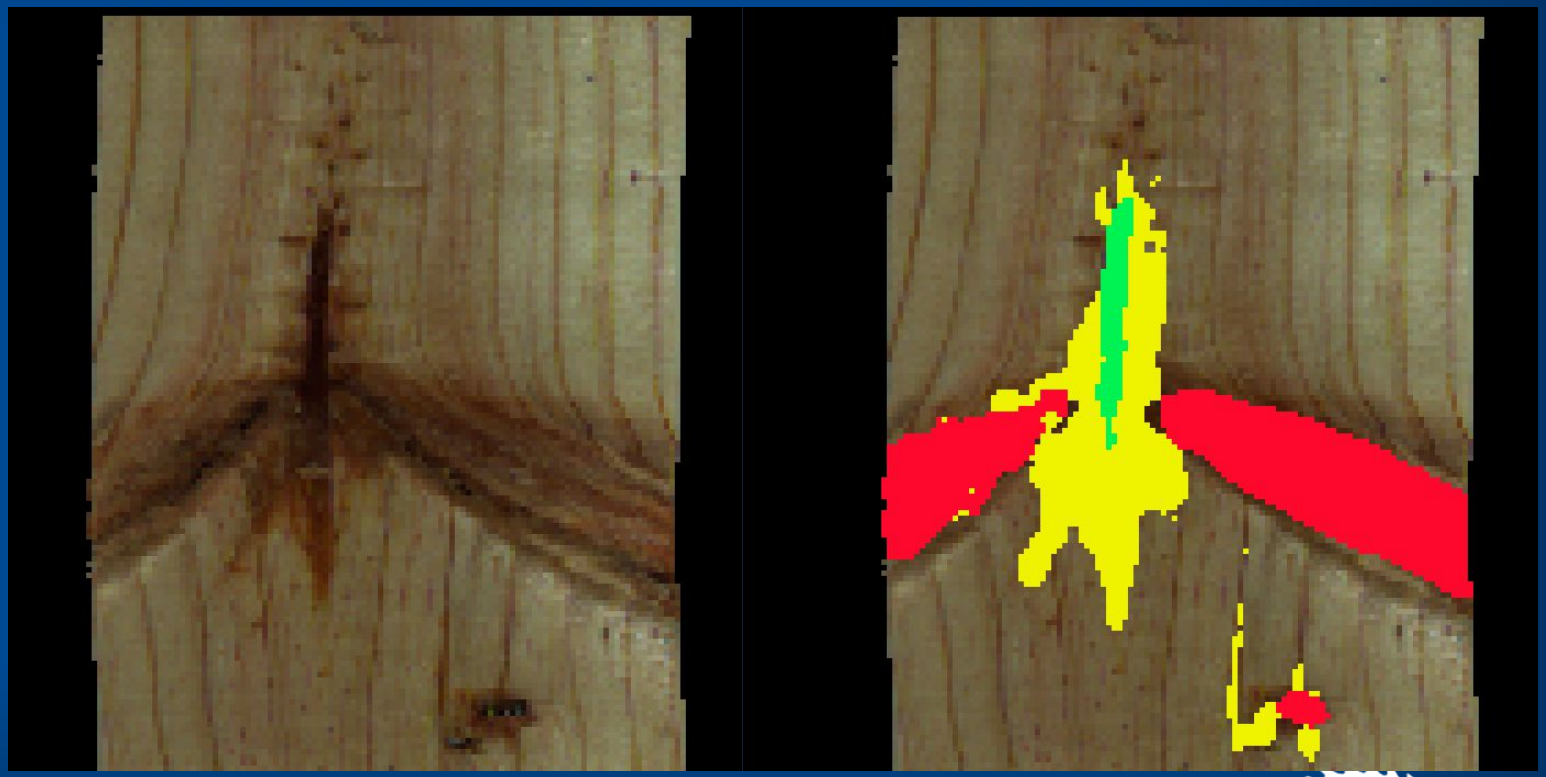
Pattern Recognition

learn the "spike/pith/spike" pattern and don't connect the knots to each other



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Deep Learning Advantages:

- No hand crafting of features – learns everything from examples
- Same process no matter what to be learned – collect images/train
- Overall more capable and accurate

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GradeScan Sensor Subset:

RGB color

Tracheid sensor

T3 Sensor

Throughboard Sensor

Geometric Sensor

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Current 50+ Class Net Outputs (more to come!)

KnotRed
KnotDead
KnotBlond
KnotDecayed
KnotBarkEncasement
KnotSlough
CrossGrain
PocketPitch
PocketBark
StainBlue
StainKiln
Clear
CompressionWood
ShakePitch
ShakeTimberBreak
CheckSeason
Pith
Skip
SkipStained
BirdseyeBlonde
BirdseyeDark
WhiteSpeck
UnsoundWood
IncipientDecay
LeafScar
BrownStain
PlanerBurn
PlanerKnifeMark
SawCuts
PitchMass
PitchBlack
AntEatenPith
WormEatenPith
WormHole
BeetleHole
Wane
WaneSmoothBark
Shake
HoneyComb
TornGrain
ManHole
ManHoleCrushed
Burl
FireScar
KnotDistortion
MineralPocket
MineralStreak
Heartwood
Sapwood
StainSpauld

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Current Species Trained to Date (more to come!)

- SYP
- Ponderosa Pine
- KD Douglas Fir
- White Fir
- Green Hemlock
- Redwood
- Cedar
- Radiata Pine
- Eastern White Pine
- Green Douglas Fir
- Hemlock
- Green Rough Hemlock
- Alder
- SPF

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Hampton – Warrenton

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Hampton – Tillamook

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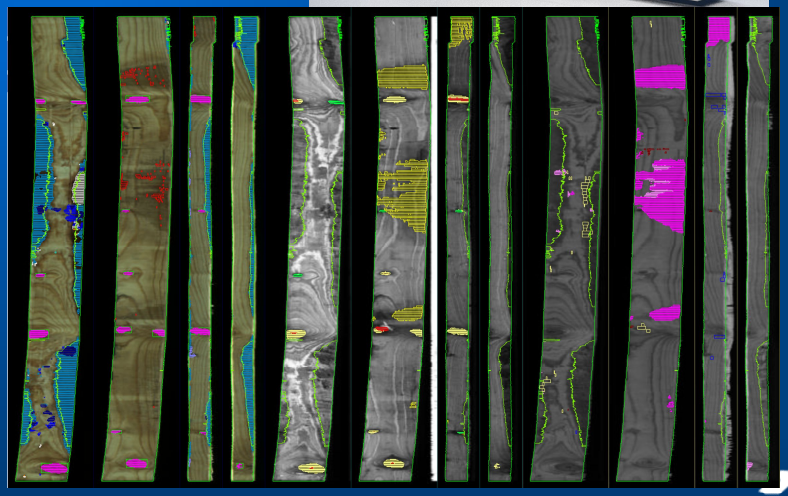
GradeScan with Perceptive Sight

- All new GradeScans have the Perceptive Sight software platform

- Currently installing at the rate of one/month



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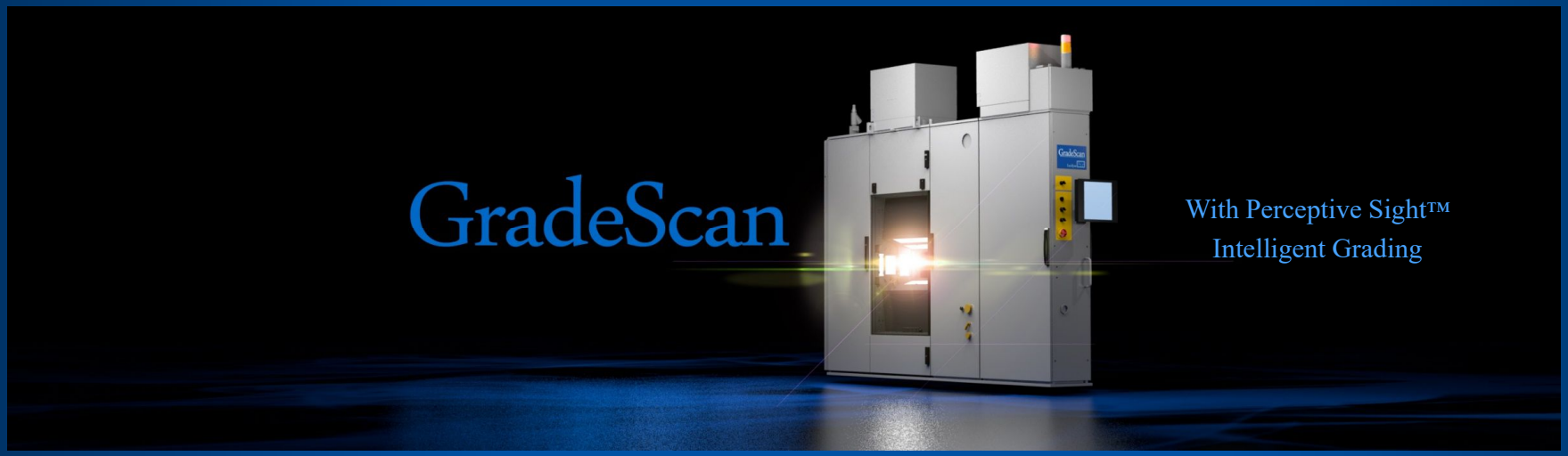

Dave Reader

Fiber Recovery Specialist- Hampton

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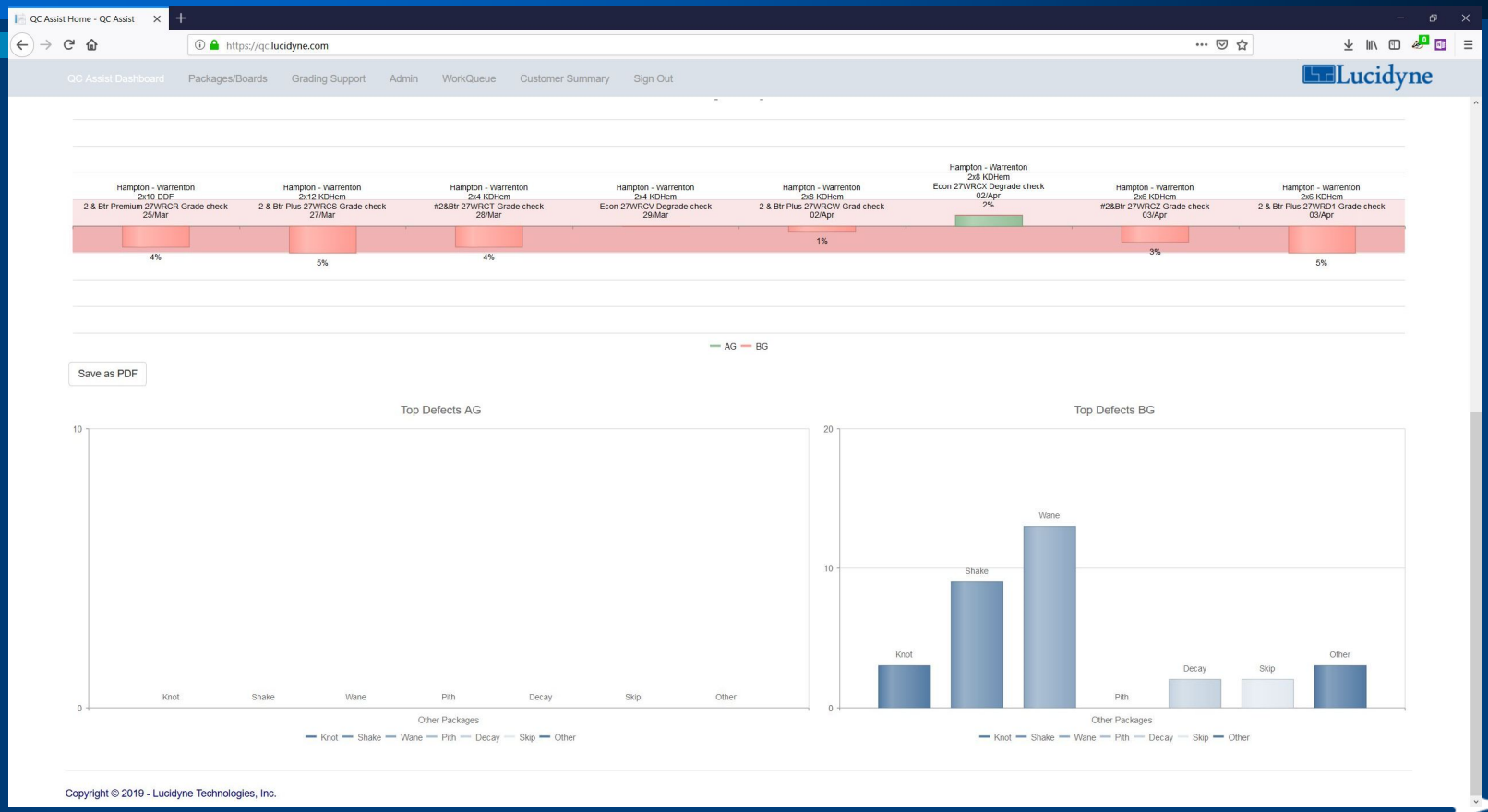
Field Results – QCAssist ™ Dashboard



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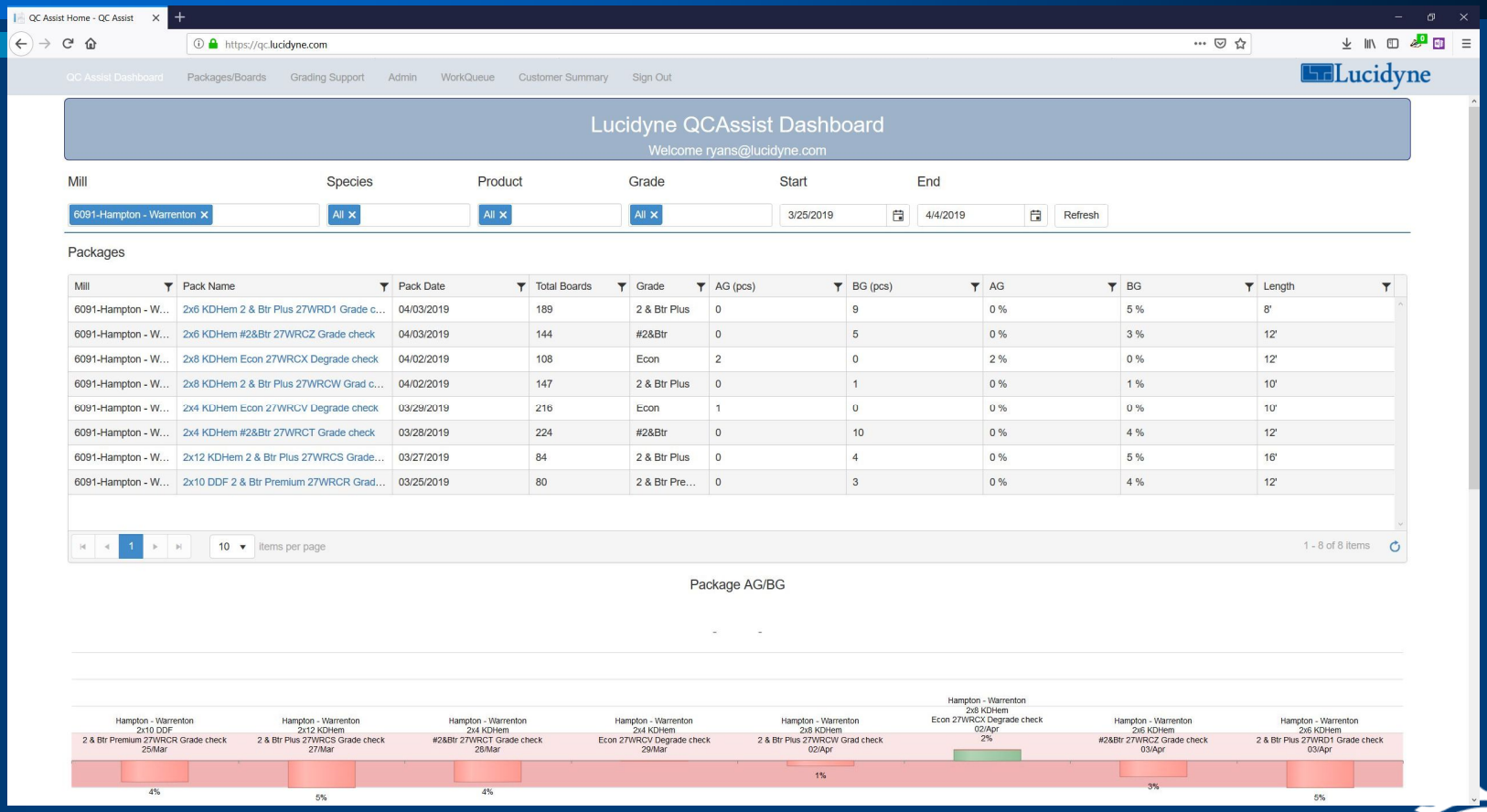
Field Results – QCAssist ™ Dashboard



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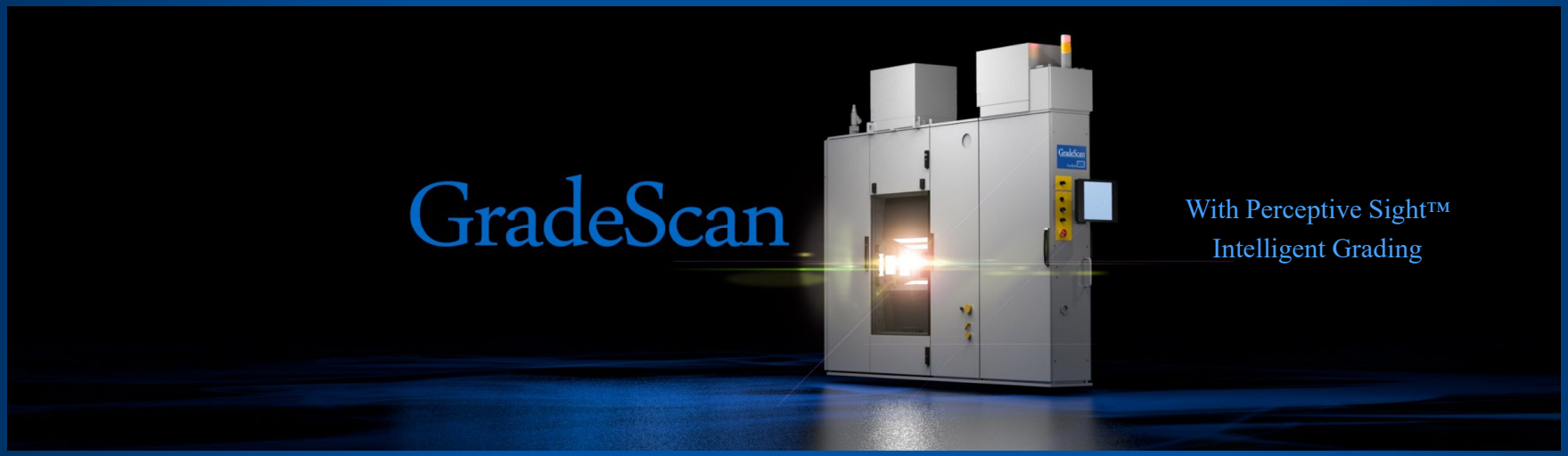

Ellen Nelson

Chief Financial Officer

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