

Automation *The Future is Now*

Leveraging automation in today's manufacturing & project environment

Abstract

Learn how the latest technology innovations are being applied to improve how projects are executed and manufacturing operations are performed and maintained.

These innovations include:

- Mobile Devices
- Drones
- BlockChain
- Robots
- AGVs & AMRs
- Automated Packaging & Warehousing
- Digital Identification & Tracking (RFID/NFC)
- Virtual Reality
- Corporate System Integration





Jan Shumate is the Director of Worldwide Engineering & Construction Solutions and Corporate Manufacturing Automation Transformation for Eastman Chemical Company. Jan leads the initiative for automating Eastman's corporate manufacturing sites and has strategic oversight for the innovative SEIGA (Seamless EPCOM Integrated Global Access) digital innovation team. These teams utilize breakthrough technology and leverage system integration to provide superior Engineering, Procurement, Operations, and Maintenance solutions while rapidly accelerating implementation and adoption of new technologies, automated operations, and automated services in alignment with Eastman's corporate specialty materials strategy.

EASTMAN

Jan Shumate

Director, Engineering Services & Solutions
Worldwide Engineering & Construction

Ms. Shumate holds a Bachelor's Degree in Mechanical Engineering from Purdue University, a Master's Degree in Industrial Engineering from the University of Tennessee and a Master's Degree in Business Administration from Northwestern University's Kellogg School of Management.



EASTMAN

Bryan Shackelford

Innovation Rep., Engineering Services & Solutions
Worldwide Engineering & Construction

Bryan Shackelford is an Innovation Representative for Worldwide Engineering & Construction Services and Solutions for Eastman Chemical Company. Bryan coordinates innovative Engineering and Construction Enabling Technology Team projects as well as corporate manufacturing automation initiatives. These areas utilize breakthrough technology and leverage system integration to provide superior EPCOM solutions in alignment with Eastman's corporate specialty chemical materials strategy.

Mr. Shackelford was born in Kokomo IN and holds a Bachelor's Degree in Fine Art from East Tennessee State University, and an Associates Degree in Chemistry from the Northeast State Technical College.



EASTMAN

Kyle Kramer

Automation Project Leader,
Engineering Services & Solutions
Worldwide Engineering & Construction

Kyle Kramer is an Automation Project Leader for Worldwide Engineering & Construction Services and Solutions at Eastman Chemical Company. Kyle leads robotics and automation transformation initiatives with manufacturing and other organization to meet Eastman's strategic goals and objectives.

Kyle Kramer is a certified Project Management Professional (PMI) and Lean Six Sigma Black Belt (ASQ). He holds a Bachelor's Degree in Chemical Engineering from Tennessee Tech and a Master's Degree in Industrial Engineering from North Carolina State University.

Advancement of Technology in the personal space – yesterday, today, and tomorrow

Communication | Connected Home | Wearables

Approved for external use





Bringing Technology together in MFG

- Strategy
- IT security
- Champion
- Right Kind of People
- Facilitation
- Prioritization
- Tools
- ROI

Mobile Devices - Jan

- Safety
 - LOTO verification
 - Permitting
 - Operating Procedures
- Third Party Efficiencies
- Execution forces
- eCommerce
- Data on-the-go



Drones - Jan

- Confined Space Inspections
- Elevated Work
- Leak Detection
- Bridge Inspections
- Hot Work Inspections
- Disaster Reconnaissance & Remediation
- Package Delivery
- Professional Sports





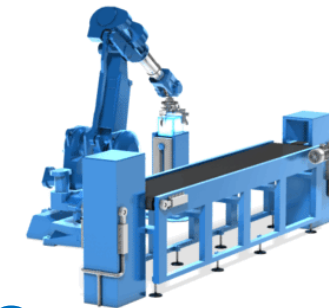
Blockchain - Jan

Verification & Validation

- Smart Contracts
- Smart Wallets
- Supply Chain
- Insurance



Efficiencies Gained



Robots - Kyle

Industrial Robotics:

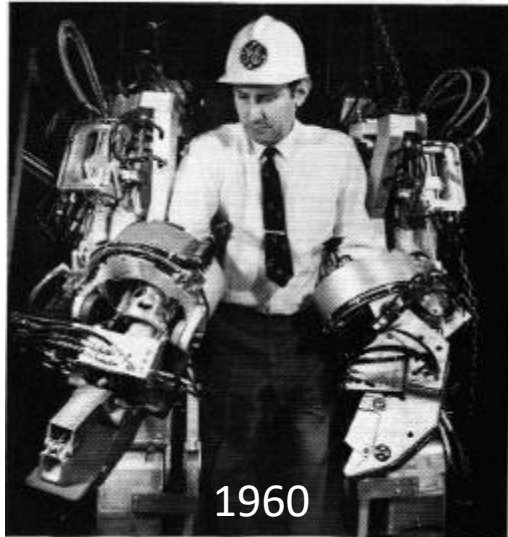
- Confined Space Inspections
- UT Thickness Testing
- Autonomous Mobile Robots (AMRs)
- Collaborative Robotics
- Farming

Service Robots:

- Food Service
- Sanitation Robots
- Security
- Medical Delivery
- Transportation
- Home (Amazon Astro)



Past & Future



AGVs & AMRs - Kyle

Commerical:

- Disney – Amusement Rides
- Waymo – Autonomous Vehicles
- Submarines (Bedrock)

Industrial:

- Amazon – Automated Logistics
- Walmart robots for stocking / picking
- Kroger Automated Fulfillment (The HIVE)
- FedEx (SameDay Bot)



Automated Packaging & Warehousing - Kyle

- The Rise of Digital Platforms
- Ecommerce
- Future of Grocery Shopping and Fulfillment
- NC State Hunt Library

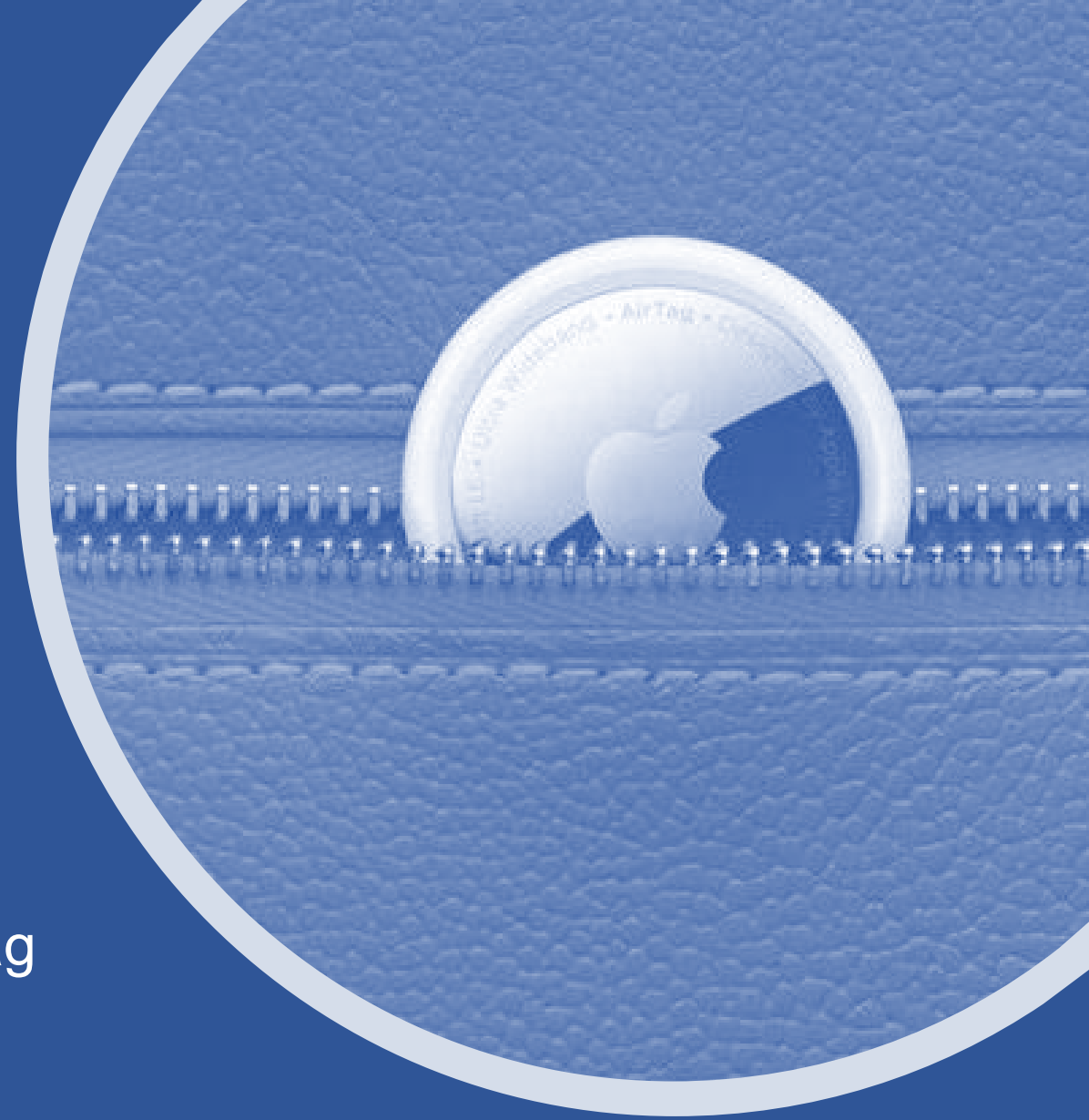


Corporate System Integration - Bryan

- Artificial Intelligence
 - Operational Excellence (see digital twin below)
 - Schedules and forecasts
 - Predictive Maintenance and Reliability
- Turn around/Shut down integration
- Document Control
- Digital Twins
- Real Time Progressing
- Dashboards
- Information Access
- Interoperability

Digital Identification & Tracking (RFID/NFC) - Bryan

- Raw Materials
- Production Material Flow
- End-Product
- Rental Equipment
- (Small and Heavy)
- Valentino Shoes Shopper Preference Tag
- Rental Car – Checkout & Tolls
- Railway Tracking / Truck Tracking



Virtual Reality - Bryan

- Apprentice training
- Safety training
- Design review
- Commissioning training
- Operator and Maintenance planning





EASTMAN

Kyle Kramer
Automation Project Leader,
Engineering Services & Solutions
Worldwide Engineering & Construction



EASTMAN

Jan Shumate
Director, Engineering Services & Solutions
Worldwide Engineering & Construction



EASTMAN

Bryan Shackelford
Innovation Rep., Engineering Services & Solutions
Worldwide Engineering & Construction

Q & A
