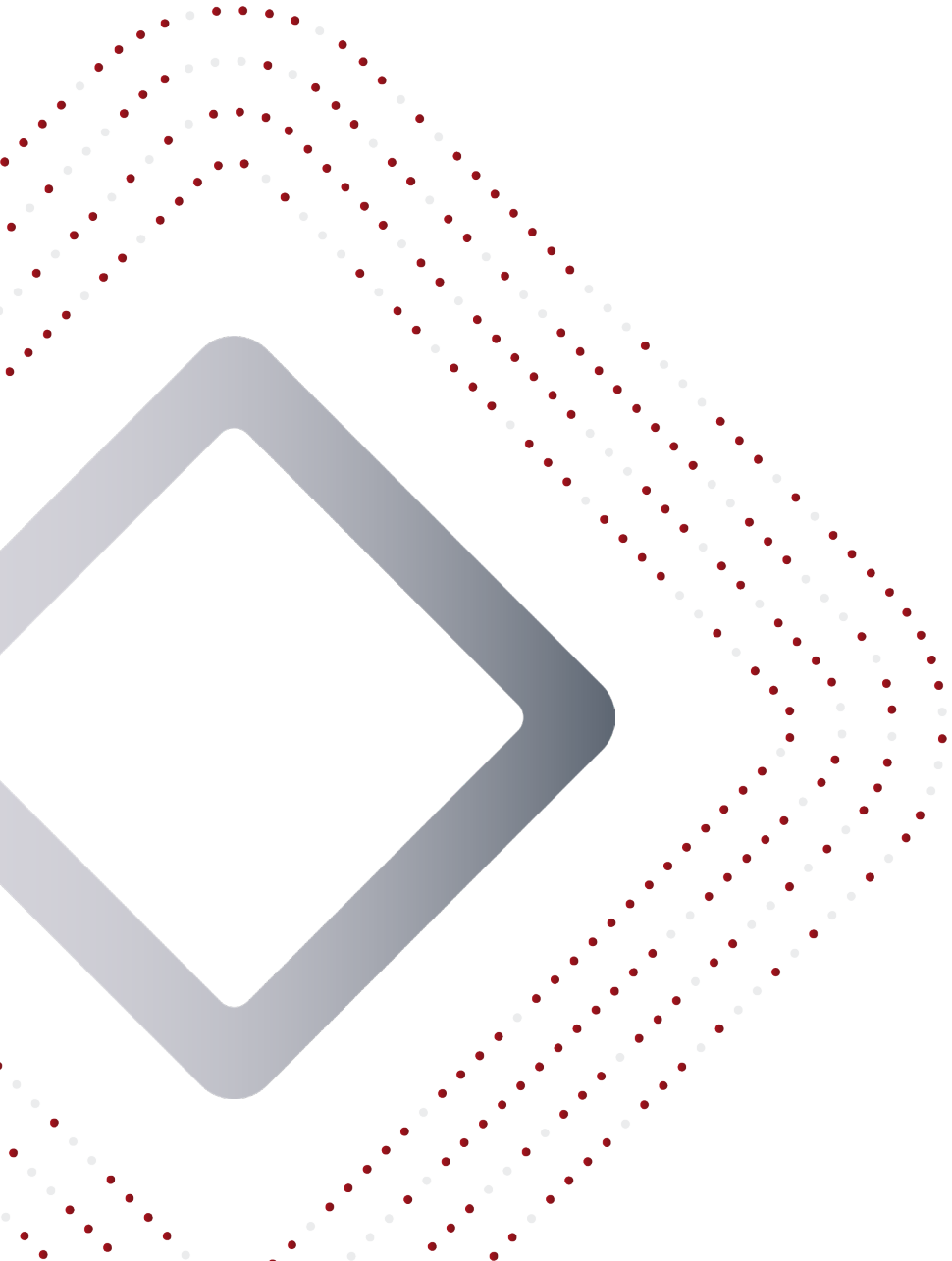
ANDREWS COOPER

Roadmapping for Strategic Automation Development

BOOK 3 OF 5

ENHANCING MACHINE VISION

TECH TALKS™ EBOOK SERIES



www.Andrews-Cooper.com

ABOUT ANDREWS COOPER

Andrews Cooper (AC) excels at advanced engineering for emerging technologies, specializing in Research & Development, Product Development, Hardware Testing, and Manufacturing Automation. We cater to ambitious, tech-focused companies seeking to innovate and lead their industries. With expertise in multiple engineering disciplines, our engineers function as force multipliers, propelling the development of HardTech solutions. With a focus on rapid development using proven methodologies, we de-risk the development process and integrate validation and testing to ensure high-quality, manufacturable products.

ABOUT THIS EBOOK SERIES

Through this eBook series on Roadmapping for Strategic Automation Development, we describe how to create a successful automation plan by creating a well-defined blueprint at each stage of development and integration. Whether you're at the start of your automation journey or need help defining ROI to replace your current manual processes, AC builds a custom manufacturing automation roadmap tailored to your specific needs. If you don't have a complete specification, we work with your manufacturing and process engineers to understand and recommend the most beneficial processes for your custom automation.

Manufacturing Automation

Looking for a snapshot of our Manufacturing Automation services? Watch our 1-Minute Video.

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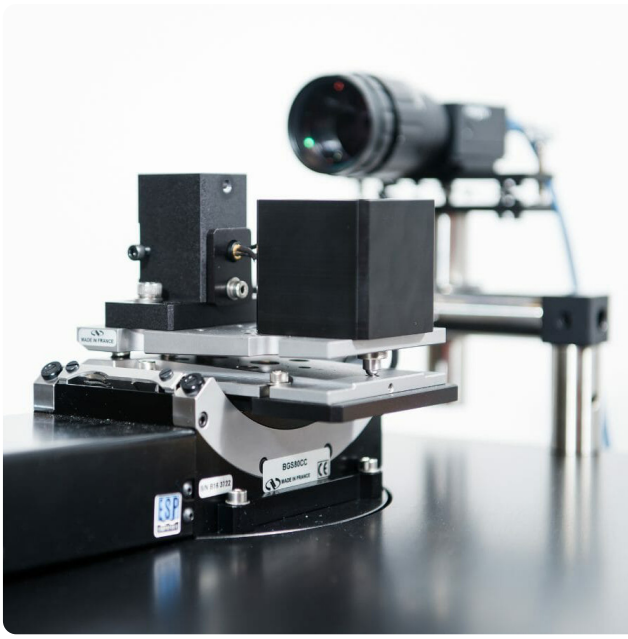
THE AUTOMATION ROADMAP: Enhancing Machine Vision

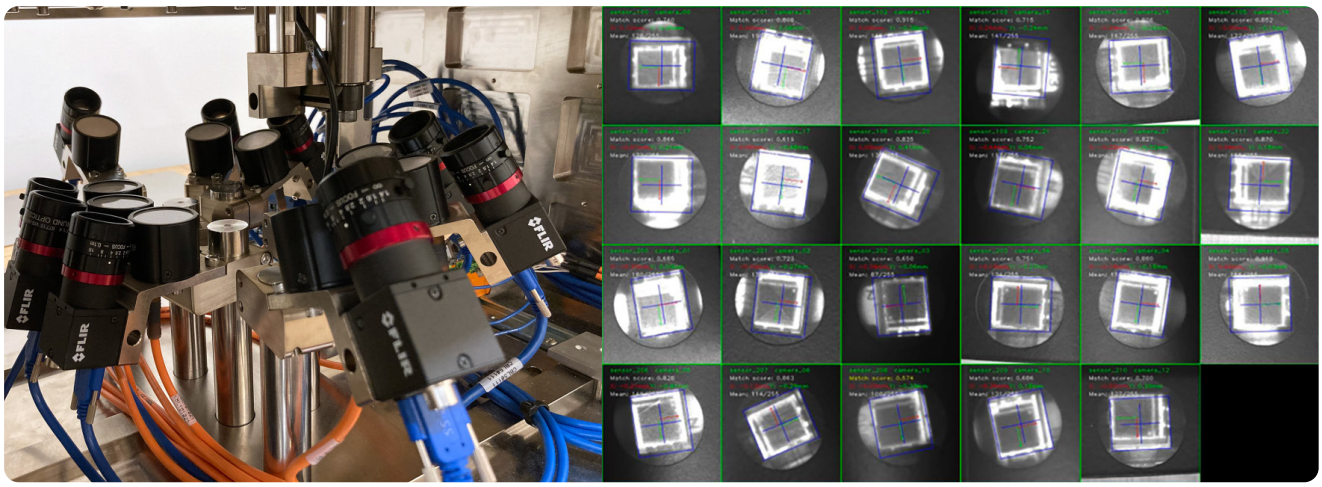
Machine vision systems play a crucial role in vision-guided part handling and quality inspection manufacturing processes. An automation roadmap with a vision integration plan serves as a strategic guide for selecting the right technologies to ensure accurate manufacturing performance and quality inspection.

1 | Define Vision Requirements to Select Technologies

The automation roadmap includes a comprehensive definition of machine vision requirements through analyses like these:

- **Define Precision Performance**: Define how the vision system will deliver precision performance and integrate with other coordinated robotic and motion stages for the highest accuracy and speed.
- **Assess Vision Technologies**: Evaluate available vision technologies to select those that best meet the operational requirements and goals of the manufacturing process, such as image resolution, frame rates, and processing capabilities.
- **Include Emerging Capabilities**: Evaluate new technical capabilities to enhance the accuracy and speed of vision-guided material handling, part recognition, and quality inspection, such as Apera.AI's 4D vision technology , which blends machine vision AI and neural network part recognition.
- **Future-Proof Systems**: Consider future advancements in vision technologies to ensure that the integrated systems remain relevant and effective over time.





2 | Optimize Vision Technologies & Performance

For part inspection and defect detection, optimal lighting and the right vision technology are crucial. The roadmap scopes vision system performance requirements through thorough analysis, including:

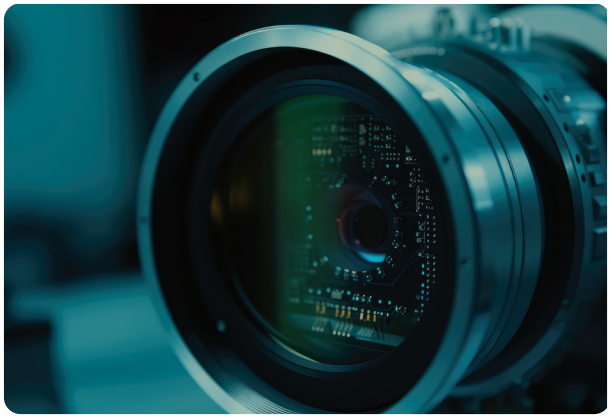
- **Enhance Quality Inspection**: Enhance manufacturing accuracy with vision inspection for metrology, component verification, and more.
- **Design for Improved Lighting**: Improve the detection of minute defects and unwanted deviations in quality with better lighting techniques such as backlit planes, illumination that minimizes shadows and glare, and part profiling lasers.
- **Ensure Adaptability**: Vision systems must be adaptable to different inspection scenarios, providing flexibility in quality control processes. Sourcing modular components allows quick reconfiguration to handle different inspection tasks with minimal downtime.
- **Validate Performance**: Conduct benchmark tests to compare vision technologies under different conditions, identifying the best-fit solutions for specific performance requirements.

Jerry Entrikin describes automating with advanced Vision Technologies in our 1-Minute Video.

Custom Manufacturing Automation: CHARTING A COURSE FOR SUCCESS

To summarize, at AC, we prioritize early engagement to understand your automation needs, operational goals, and manufacturing processes. Working closely with you early and throughout the development process enables us to develop a comprehensive and well-planned roadmap, leading to rapid and successful automation implementation.

We tailor our recommendations to meet your specific manufacturing needs by assessing existing manufacturing and inspection processes. By targeting performance and areas of significant improvement, we create a roadmap for machine vision that delivers a well-coordinated and seamless integration into your manufacturing automation line. Looking for more about the Automation Roadmapping journey? Read our next post in this series, Part 4, Integrating Machine Controls.



Regardless of where you are in your product lifecycle, improve your speed to market with AC's engineering teams in Research & Development, Product Development, Hardware Testing, and Manufacturing Automation. Let us know how can we support your current needs and solve your ambitious challenges.

"By leveraging our expertise in vision systems and machine learning, we ensure that the most advanced and suitable technologies are integrated into our clients' manufacturing processes. This ensures optimal defect detection and product quality."

-Harry Richards, AC Automation Program Director

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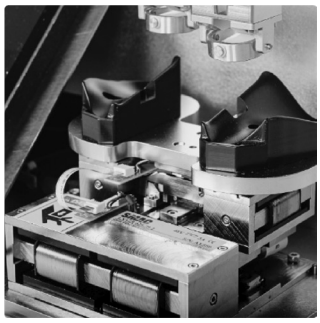
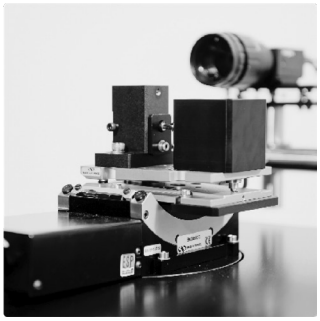
R&D Accelerator



Product Development

Hardware Testing



Manufacturing Automation

Integrated Engineering Teams

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