



# Applied Machine

# Vision '94

## Conference and Tabletop Expo

June 6-9, 1994 • Sheraton Park Place • Minneapolis, Minnesota

### Message From The Chairman

*"The premier event of the Machine Vision Industry is coming to Minneapolis!"*

This is your chance to learn about the latest developments in the rapidly developing field of machine vision. See how this advanced technology is bringing lower costs and higher quality to manufacturing, food processing, and many other industries. Hear about new developments and ideas in the works from people who are making it happen.

Applied Machine Vision '94 presents sessions that are rich in technical depth. Our goal is to provide you with access to the experienced engineers and researchers in the field while emphasizing the practical uses of machine vision. We have attempted to strike the right balance between basic and advanced technical levels by including overviews and tutorials and also presentations on high-speed inspection and three-dimensional imaging.

This year I am proud to be the chairman of what promises to be the best conference yet. Here are some of the highlights we have planned:

- The latest applications will be presented by the people who are developing them. Front-line engineers and researchers will present their work and answer your questions.
- New products will be discussed by the developers in a special technical session. Find out what's new and important.

- Tabletop exhibits by many of the major machine vision suppliers and manufacturers. You can talk to all the major companies and see their products in the same day.
- Two tutorials on the basics of imaging and optics and fundamentals of machine vision. Come up to speed quickly on this important technology.
- Tour of the University of Minnesota to experience first-hand some of the newest applications and research.
- Talk personally with people involved in engineering the machine vision industry at an informal reception open to all conference attendees and vendors. Discuss the latest ideas, applications and products face to face.
- Hear the experts' opinions (and difference of opinions) about what is happening now at the open Panel Discussion.
- Receive guidance from fellow members at the first MVA membership forum.
- Special technical sessions on Neural Networks and Fuzzy Logic in machine vision.

Plus several other events designed to provide you with the most up-to-date information possible. Join us in Minneapolis - I'm sure you won't regret it!

Donald J. Christian  
FMC Corporation  
Vision '94 Chairman

### Conference and Tabletop Objectives

- ✓ Learn new procedures available for 100% inspection in web processing.
- ✓ Understand how your operation can benefit from "learning from others" through case study presentations.
- ✓ Learn the practical aspects of doing gaging with machine vision.
- ✓ Hear how improvements in vision products increase system performance.
- ✓ Participate in the Technology Exchange Forum and the Membership Forum and gain ideas so fresh and solutions so appropriate you'll want to implement them immediately!
- ✓ Visit over 50 tabletop exhibits spanning over 2 days to "see" what you "hear" about during the conference.
- ✓ Network with speakers, attendees, and exhibitors during the informal reception alongside the exposition.

### Conference Check-in: Monday, June 6

11:00 a.m. - 3:30 p.m.  
6:30 p.m. - 8:00 p.m.

### Tuesday, June 7

7:00 a.m. - 9:30 a.m.  
12:00 p.m. - 1:30 p.m.

### Wednesday, June 8

7:00 a.m. - 9:30 a.m.  
12:00 p.m. - 1:30 p.m.

### Thursday, June 9

7:00 a.m. - 12:00 p.m.



# Applied Machine Vision '94 Conference At-A-Glance

Monday, June 6th	Tuesday, June 7th	Wednesday, June 8th	Thursday, June 9th
	<b>8:30 - 11:30 am</b> • Algorithms • New Products	<b>8:30 - 11:30 am</b> • Applications Development • 3-D and Lasers  <b>10:00 - 3:00 pm</b> • Expo Open	<b>8:30 - 11:30 am</b> • Neural Nets/Fuzzy Logic • Specifying, Testing, & Education
<b>12:00 - 3:00 pm</b> • Basics of MV Tutorial • Patents Tutorial  <b>3:15 - 6:15 pm</b> • Lighting & Optics Tutorial	<b>11:30 - 1:00 pm</b> • Luncheon and Presentation  <b>12:00 - 8:00 pm</b> • Expo Open  <b>1:00 - 4:00 pm</b> • Web Processing • Univ of MN Tour	<b>11:30 - 1:00 pm</b> • Awards Luncheon  <b>1:00 - 4:00 pm</b> • Gaging • MTS Tour	<b>11:30 - 2:00 pm</b> • Panel Discussion and Luncheon
<b>7:30 - 9:30 pm</b> • Exchange Forum	<b>4:30 - 8:00 pm</b> • Expo & Reception	<b>4:00 - 5:30 pm</b> • Membership Forum	

## Tutorial INFORMATION

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### The Basics of Machine Vision Applications Tutorial

**Monday, June 6**  
**12:00 p.m. - 3:00 p.m.**

**Speaker:**

Nello Zuech, President  
 Vision Systems International

This tutorial is an introduction to machine vision as well as an in-depth refresher for the more experienced attendee. It will address the following:

- Introduction
  - Human vision vs. machine vision

- Definition of machine vision
- Review of types of machine vision applications
- Image Formation
  - Lighting
  - Optics
  - Sensors/Cameras
  - Digitizing
- Image Processing
  - Gray scale vs. binary
  - Enhancement
  - Segmentation
- Analysis
  - Photometric
  - Geometric
- Review of types of products in market
- Review of "rules of thumb" to use to evaluate potential of machine vision to address an application
- Review of tactics to use in defining the requirements and writing a specification for an application

**The goals/objectives of this tutorial are:**

- To be made aware of machine vision technology and provide a level of understanding so one can assess its potential to address applications.

- To provide an introduction to the application engineering issues associated with "staging".
- To become familiar with basic machine vision terminology; pixel/subpixel, resolution, gray scale, binary, convolution, morphology, window/region-of-interest, contrast, digitizing, threshold, and edge.
- To introduce the concepts of image sensing, processing and analysis.
- To be able to understand there are differences between machine vision products.
- To be able to write a specification for a machine vision application.

### Protecting Your Technology

**Monday, June 6**  
**12:00 p.m. - 3:00 p.m.**

**Speakers:**

Scott Peterson and John Simpson Hill, Steadman & Simpson Law Firm