



A View from the Summit (Part 1)

Jeff Bier
Founder, Edge AI and Vision Alliance
President, BDTI

May 23, 2023

Solving Real-World Problems at Scale



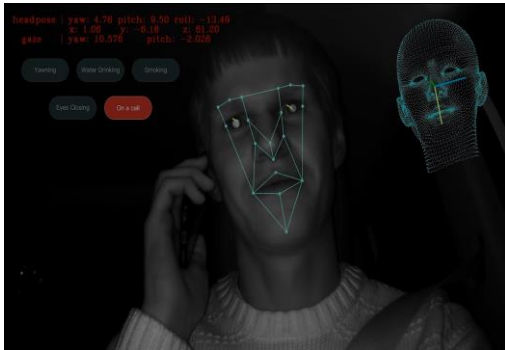
Sportologiq



John Deere



Tryolabs



NXP



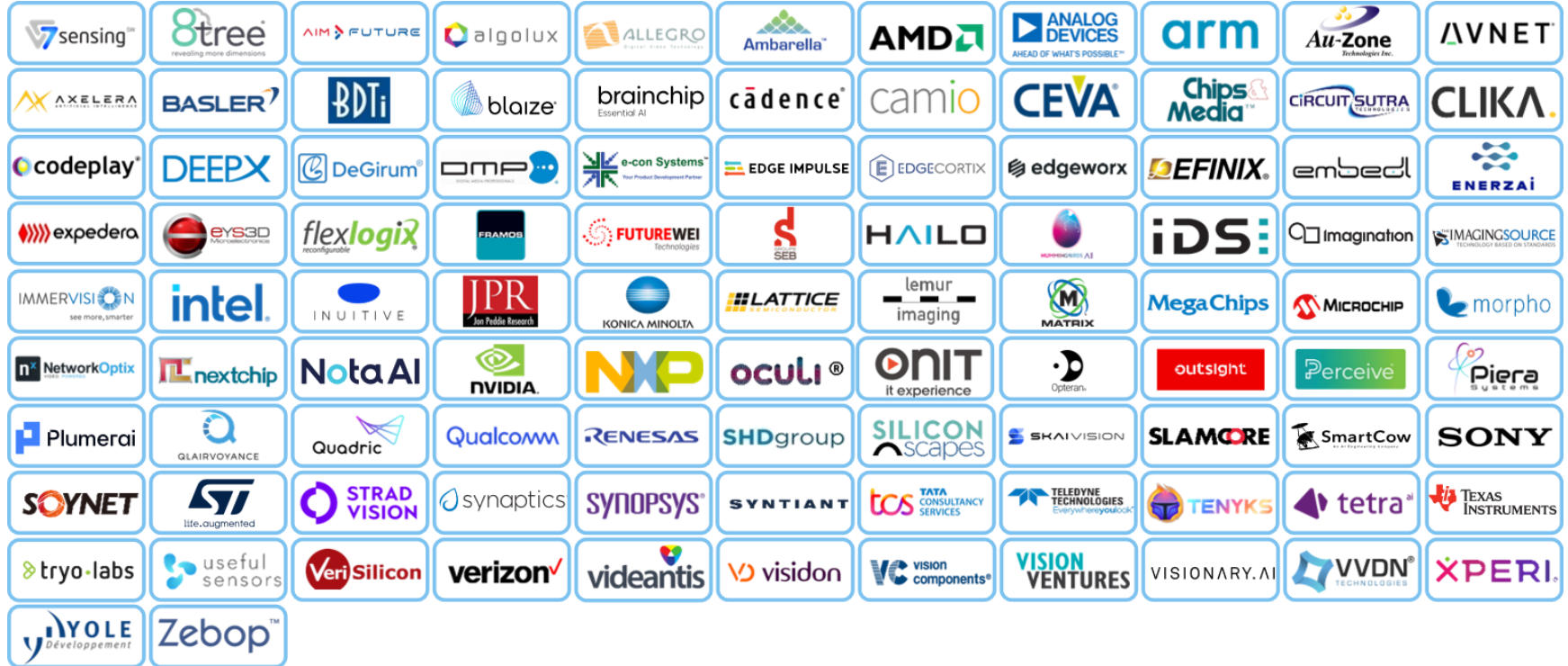
Peloton



Tryolabs



Alliance Member Companies



Inspire and Empower Product Creators



- Awareness of new technologies, techniques and capabilities
- Building skills and know-how
- Connections to colleagues, suppliers, open source projects, standards and other resources




For Product Developers


on Systems™
Technology Thu
Gain Insights from our tech

BLOG ▸

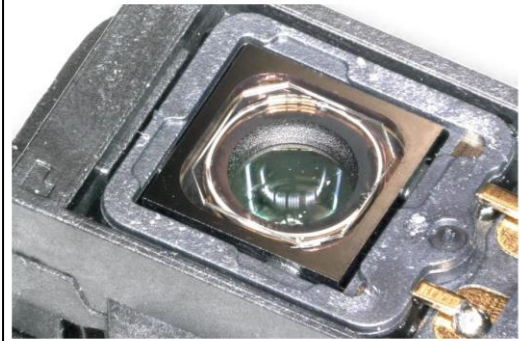
What is
NIR Imaging and
How do
NIR Cameras work?



What is Near-infrared Imaging and How Do NIR Cameras Work?



Cadence Demonstration of Real-time Visual SLAM for Embedded Devices



The poLight TLens Piezoelectric MEMS Autofocus Module is In the Magic Leap 2

www.edge-ai-vision.com

edge ai + vision
INSIGHTS
The Latest developments in computer vision and edge AI

edge ai + vision
ALLIANCE

VOL. 12, NO. 12 **A NEWSLETTER FROM THE EDGE AI AND VISION ALLIANCE** **Late June 2022**

To view this newsletter online, [please click here](#)

DEVELOPING SECURE VISION-BASED DESIGNS

IoT and Vision: Why It's a Security Minefield and How to Navigate It
Recent advancements in machine learning have enabled market innovators to build insights from IoT sensors in the wild. These insights can be used to solve complex real-world challenges. The lack of security in typical vision-based IoT solutions is especially concerning, as they are typically responsible for managing sensitive data (PID, CCTV) or critical systems (cars, machinery). Security is rarely the first thought for developers of new types of solutions, but making systems secure after the fact is difficult since a holistic approach is required. Exacerbating this challenge of achieving end-to-end security, the development and deployment of IoT systems often involves multiple handovers of responsibility, which can make achieving end-to-end security difficult. And, due to the complexity and diversity of these systems, security bodies have been unable to prescribe "silver bullet" solutions. Based on first-hand experience, this 2021 Embedded Vision



Enable Companies to Succeed



- Insights into trends in markets, technologies, applications and standards
- Connections with customers, suppliers and ecosystem partners
- Becoming visible as thought leaders



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edge ai + vision **A L L I A N C E**™
Inspiring + empowering innovators to design systems that **perceive + understand**

See us at booth #402

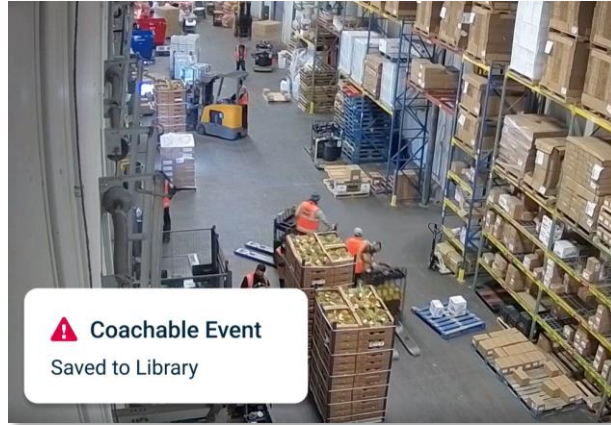
Visit *membership*.edge-ai-vision.com



Application Trends



Hayden.ai



Samsara



Android Central (Roborock)



Nauto



Zipline Drone Delivery

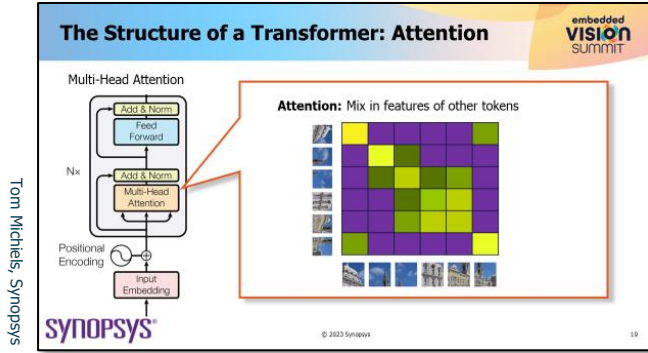


Zipline

<https://youtu.be/DOWDNBu9DkU> and
https://youtu.be/_lhaW_yizk



Key Technology Trends



Key Technology Trends

The Structure of a Transformer: Attention

Multi-Head Attention

Attention: Mix in features of other tokens

Tom Michiels, Synopsys

SYNOPSYS

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Frontal view fusion

- All images are fused together
- Including the camera image
- Lidar/camera fusion
 - BGF fusion operator

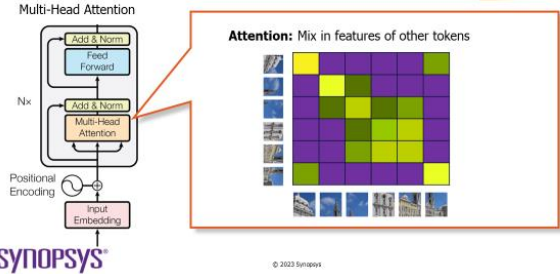
Robert Laganière, Sensor Cortex / Univ. of Ottawa

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Key Technology Trends

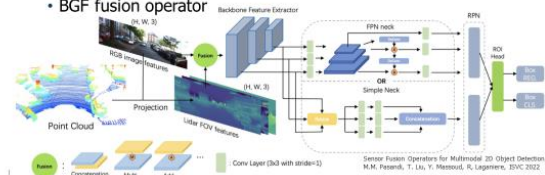
The Structure of a Transformer: Attention



Tom Michels, Synopsys

Frontal view fusion

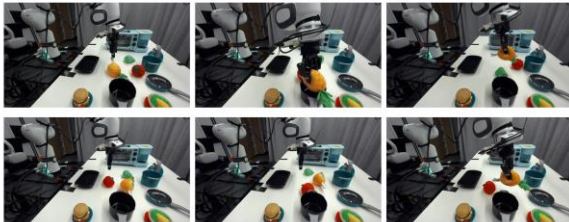
- All images are fused together
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 - BGF fusion operator



Robert Laganiere, Sensor Cortex / Univ. of Ottawa

Noisy demos → Language Goal-Based Policies

Goal: "Place the pineapple in the pot"

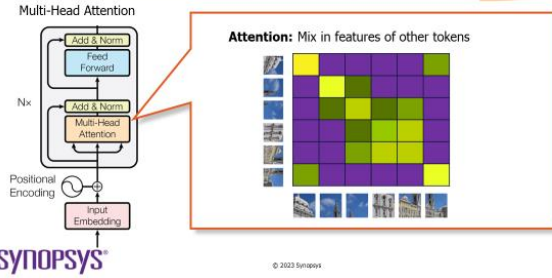


Dinesh Jayaraman, Univ. of Pennsylvania



Key Technology Trends

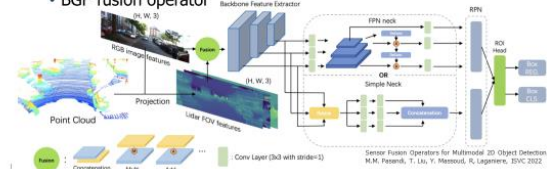
The Structure of a Transformer: Attention



Tom Michels, Synopsis

Frontal view fusion

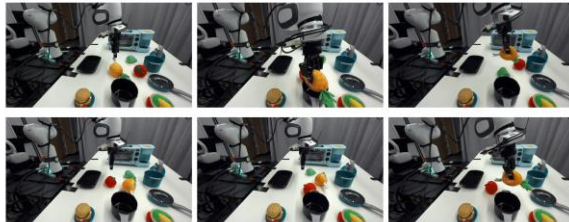
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Robert Laganiere, Sensor Cortex / Univ. of Ottawa

Noisy demos → Language Goal-Based Policies

Goal: "Place the pineapple in the pot"



Dinesh Jayaraman, Univ. of Pennsylvania

penguins on a highway

Generate image



Stablediffusionweb.com



Panel on Generative AI: How Will It Impact Edge Applications and Machine Perception?



Sally Ward-Foxton
EE Times



Greg Kostello
Huma.AI



Roland Memisevic
Qualcomm AI Research



Vivek Pradeep
Microsoft

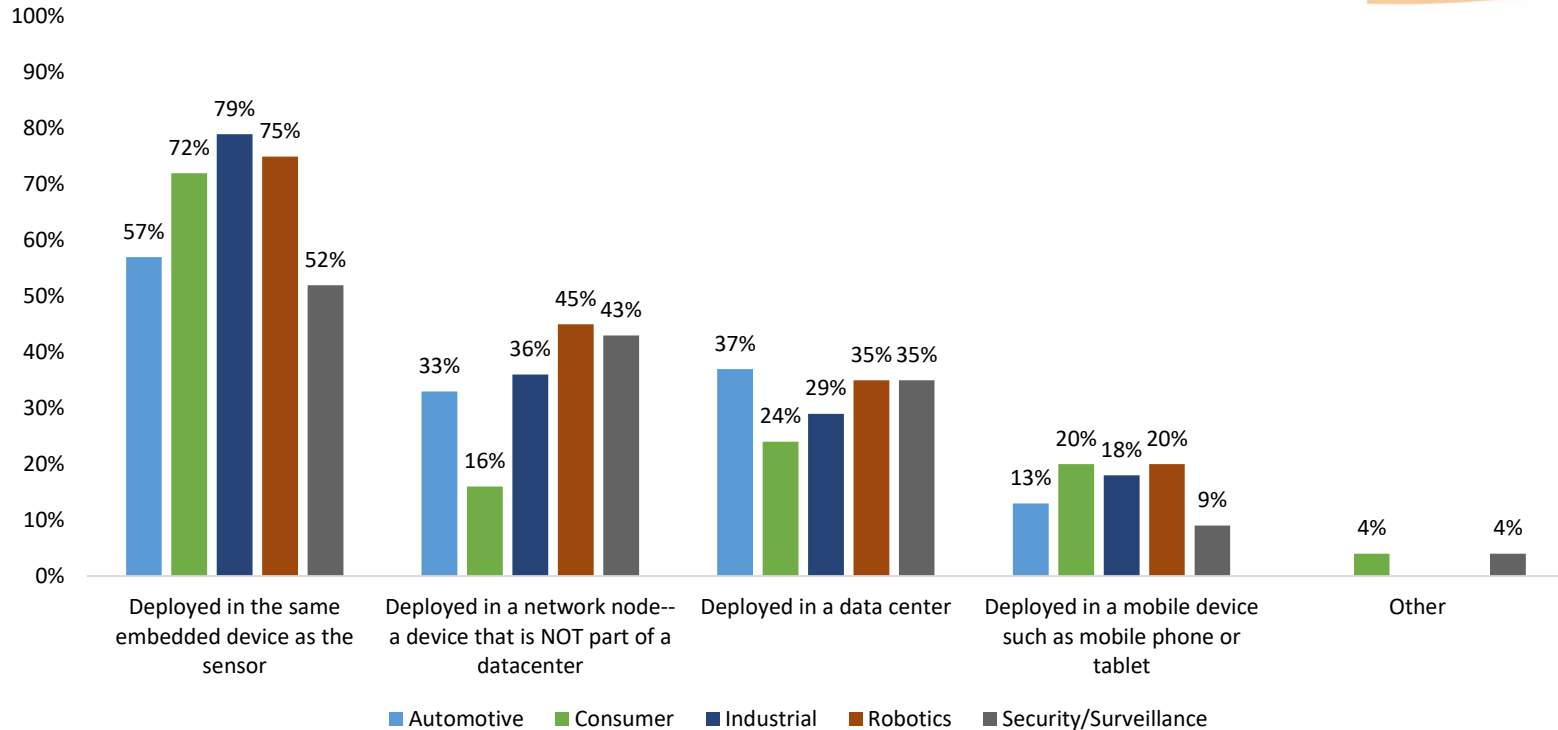


Steve Teig
Perceive

Wednesday, 9:30 am



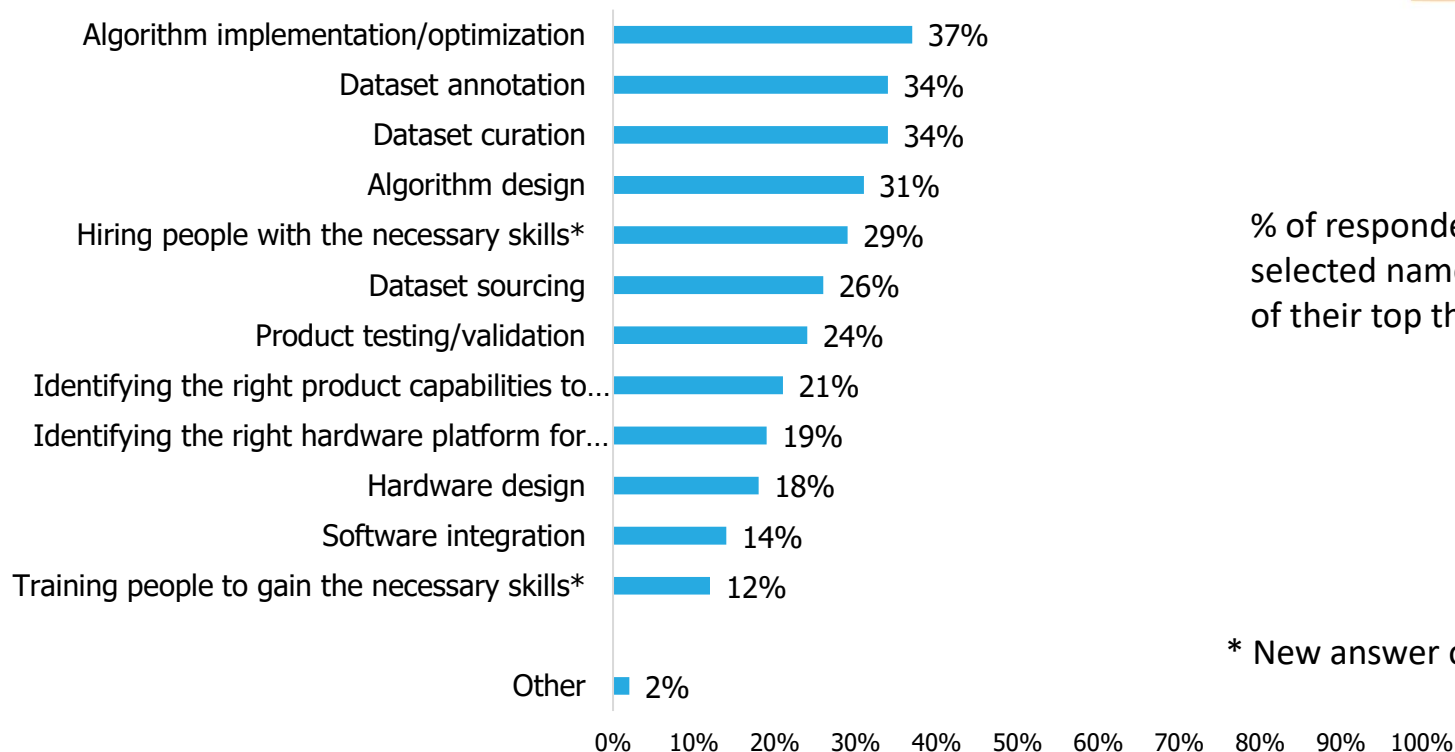
How is Your Neural Network Deployed?



Source: Edge AI and Vision Alliance, *Computer Vision Developer Survey, November 2022*



Most Challenging Product Development Aspects



% of respondents who selected named category as one of their top three challenges

* New answer option in 2022

Source: Edge AI and Vision Alliance, *Computer Vision Developer Survey, November 2022*

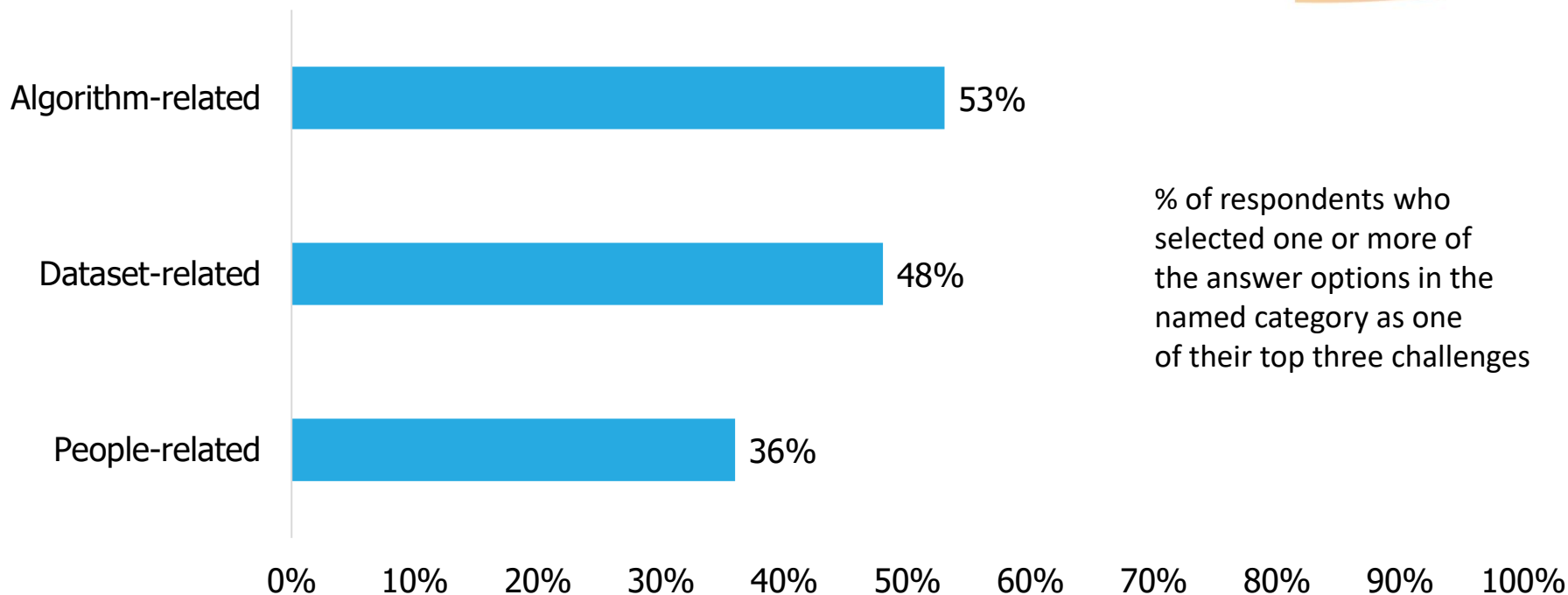


edge ai + vision

ALLIANCE™

Inspiring + empowering innovators to design systems that perceive + understand

Most Challenging Product Development Aspects (Consolidated)



Source: Edge AI and Vision Alliance, *Computer Vision Developer Survey, November 2022*



Panel: Accelerating the Era of AI Everywhere



Jeff Bier
Edge AI and
Vision Alliance



Dean Kamen
DEKA Research &
Development



Lokwon Kim
DEEPX



Jason Lavene
Keurig Dr Pepper



Pete Warden
Useful Sensors

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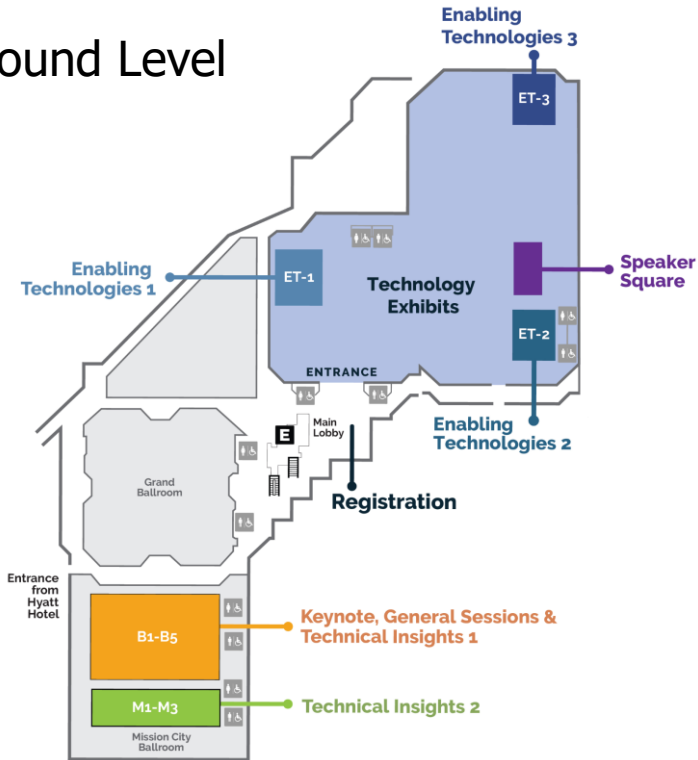


Tuesday Schedule

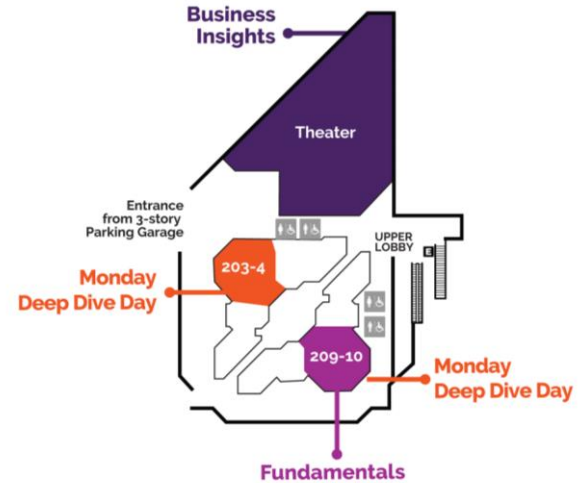
9:00 - 11:10 am	INTRODUCTION, KEYNOTE and GENERAL SESSION								
	11:10 - 11:25 am Break								
11:25 - 12:30 pm	Technical Insights 1	Technical Insights 2	Fundamentals	Business Insights					
	12:30 - 1:30 pm Lunch - Expo Hall								
1:30 - 3:10 pm					Enabling Technologies 1	Enabling Technologies 2		12:30 - 7:30 pm Technology Exhibits Expo Hall	
	3:10 - 4:15 pm Break								
4:15 - 5:55 pm							Enabling Technologies 3		
6:00 - 7:30 pm	6:00 - 7:30 pm Technology Exhibits Reception: Expo Hall				6:30 - 7:30 pm Women in Vision Reception: Expo Hall ET-1				
	6:00 - 6:30 pm Edge AI and Vision Product of the Year Awards: Expo Hall ET-3								

Facility Map

Ground Level

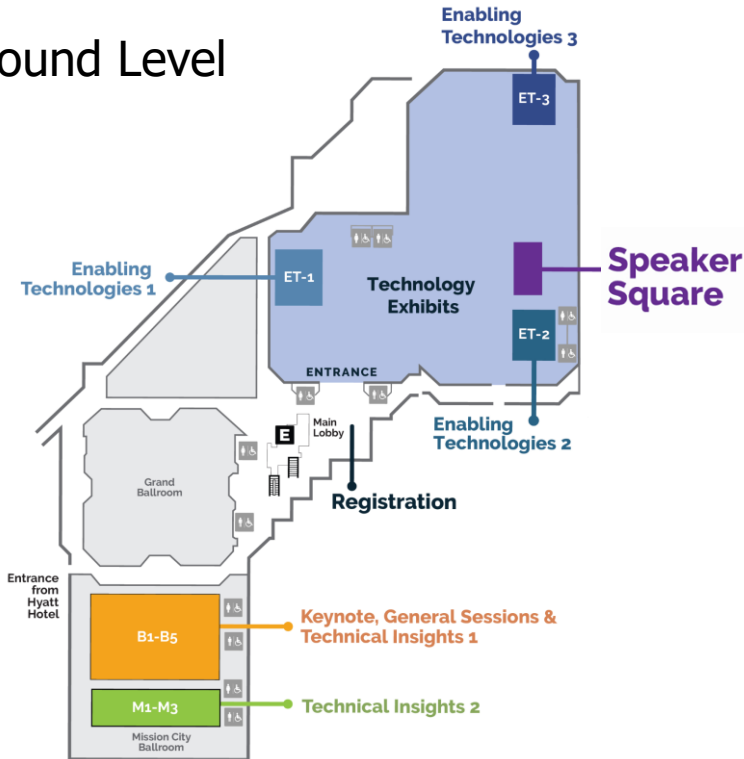


Upstairs

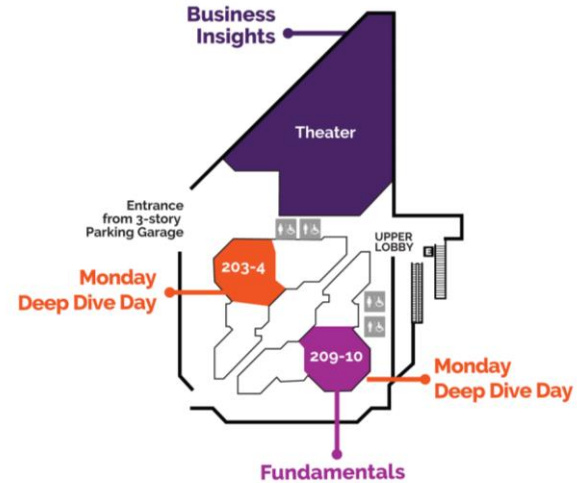


Facility Map

Ground Level



Upstairs



Speaker Office Hours (in the Speaker Square)

Tuesday

1:30 pm: Kristen Grauman

University of Texas at Austin /
Facebook AI Research

**First-person video and
multimodal perception**

2:30 pm: Susan Kennedy

Santa Clara University

Bias and ethics

3:30 pm: Pete Warden

Useful Sensors

Enabling edge AI everywhere

4:30 pm: Todd Poole

HPE Pathfinder

Venture capital

Wednesday

Greg Kostello

Huma.AI

Roland Memisovic

Qualcomm AI Research

(All at 10:30 am)

Vivek Pradeep

Microsoft

Steve Teig

Perceive

Generative AI

11:30 am: Alex Thaman

Red Cell Partners

**Bias in computer vision
systems**

2:30 pm: Jason Lavene

Keurig Dr Pepper

**Developing low-cost vision
systems**

1:30 pm: Chris Rowen

Cisco

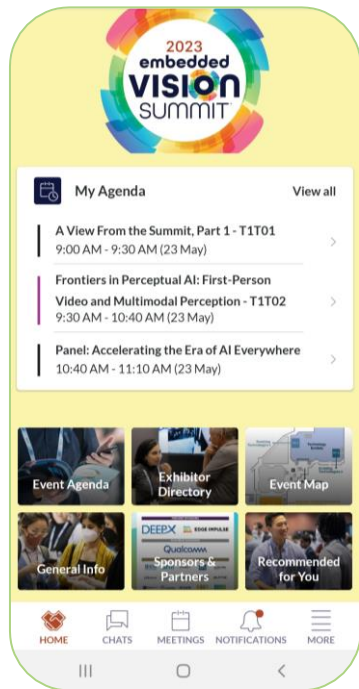
Machine learning for video

3:30 pm: Ian Riches

TechInsights

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technologies**

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 BDTi	 blaize	 BLAXTAIR	 brainchip <small>Essential AI</small>	 cadence	 CEVA	 CIRCUIT SUTRA <small>Cloud Native</small>	 CLIKA	 codeplay
 Connect Tech Inc.	 D3	 deci	 DEEPIX	 DeGirum	 DEKA <small>RESEARCH & DEVELOPMENT CORP.</small>	 e-con Systems <small>Think Global. Think e-con.</small>	 edge ai + vision ALLIANCE	 EDGE IMPULSE
 edgeworx	 EFINIX	 ETRI <small>Electronics and Telecommunications Research Institute</small>	 embed <small>EFFICIENT DEEP LEARNING</small>	 expedera	 fidus <small>innovate • design • deliver</small>	 FIRST	 flexlogix <small>reconfigurable</small>	 FRAMOS
 Generalplus	 G <small>GLOBAL INTELLIGENCE</small>	 HAILO	 IMMERVISION	 InnoPhase IoT	 INUITIVE	 IRIDA LABS	 KRONOS GROUP	 LANTRONIX
 LATTICE <small>SEMICONDUCTOR</small>	 lemur imaging	 LEOPARD IMAGING	 MICROCHIP	 MOUSER ELECTRONICS	 NetworkOptix	 nextchip	 Nota AI	 NXP
 ONIT <small>it experience</small>	 OpenCV AI Consulting	 optimizing mind	 outsight	 PARROTS <small>MEDICAL ASSISTIVE AI</small>	 Perceive	 Plumerai	 ProHawk	 QLAIRVOYANCE
 Quadric	 RECOGNI	 RENASAS	 seed studio	 SONY	 ST <small>life.augmented</small>	 STRAD VISION	 Sunex <small>Excitement in Digital Imaging Optics</small>	 supergate
 synaptics	 SYNOPSYS	 TARSENS	 TENYKS	 USEFUL SENSORS	 VeriSilicon	 VC vision components	 VISIONARY.AI	 XPERI

2023 Women in
VISION
RECEPTION

TUESDAY, MAY 23
At the Embedded Vision Summit

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Please fill out your Embedded Vision Summit survey!

Completed surveys will be entered into a drawing for one of three \$100 Amazon gift cards.



Frontiers in Perceptual AI: First-Person Video and Multimodal Perception

Kristen Grauman

Professor, University of Texas at Austin and
Research Director, Facebook AI Research



Frontiers in Perceptual AI: First-Person Video and Multimodal Perception

Kristen Grauman

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Research Director, Facebook AI Research



Panel: Accelerating the Era of AI Everywhere



Dean Kamen
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Jeff Bier
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