



Introduction to Today's Program – How to Get the Most Out of the Summit

Jeff Bier

Edge AI and Vision Alliance

May 27, 2021



edge ai + vision
ALLIANCE

My Topics

- Embedded vision applications
- Key technology trends
- Processors
- Program highlights
- Platform tips

Extremely Diverse Applications

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Blue River Technology



cpb.gov



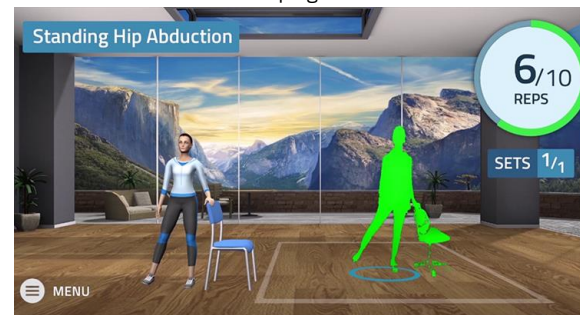
Orcam



Compology



Sight Diagnostics



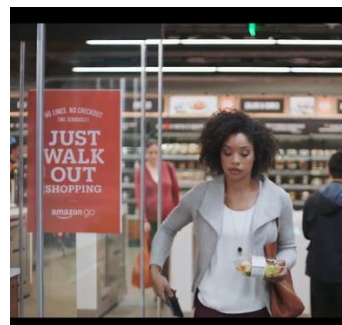
iRobot



ultrasoundtechnicalschoools.com



Ringdoorbell.eu



Amazon



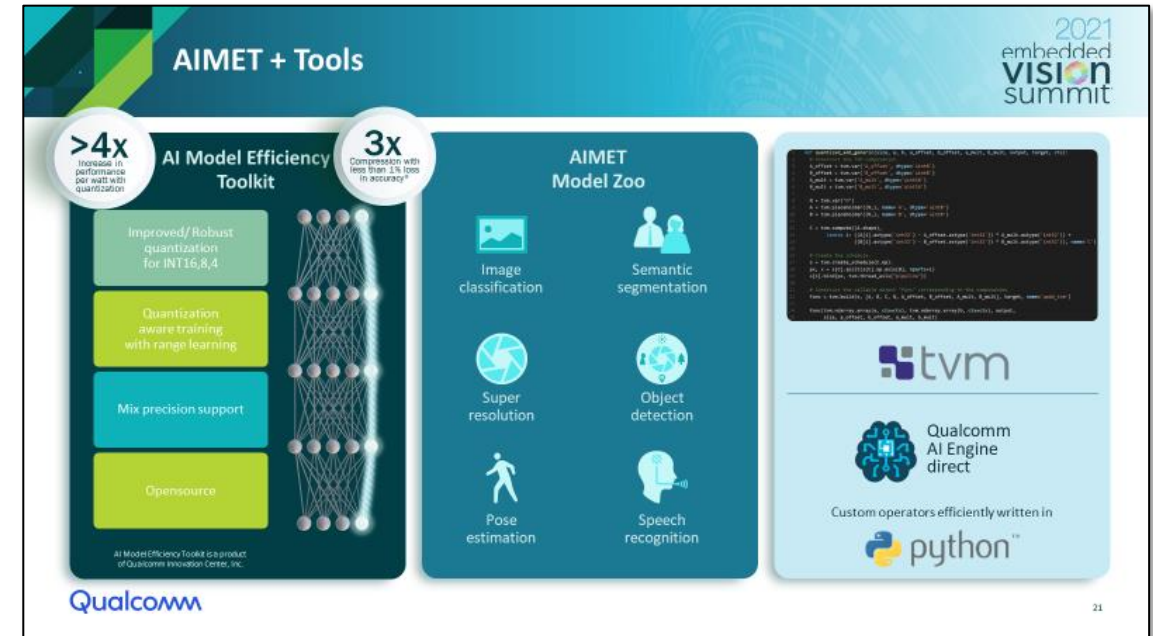
Hortdaily.com



Skydio via Medium

Ziad Asghar – Qualcomm: From Edge to Cloud

- Leveraging smartphone-focused innovation into many other markets
- From low-power, always-on devices like smartphones and earbuds, through IoT and automotive, to data center
- Big investments in software and tools as well as silicon
- Emphasis on advancing techniques for DNN quantization and compression
 - AI Model Efficiency Toolkit (AIMET)
 - Data-free quantization
 - Adaptive rounding



Source: Ziad Asghar, Qualcomm

Applications: Health and Safety

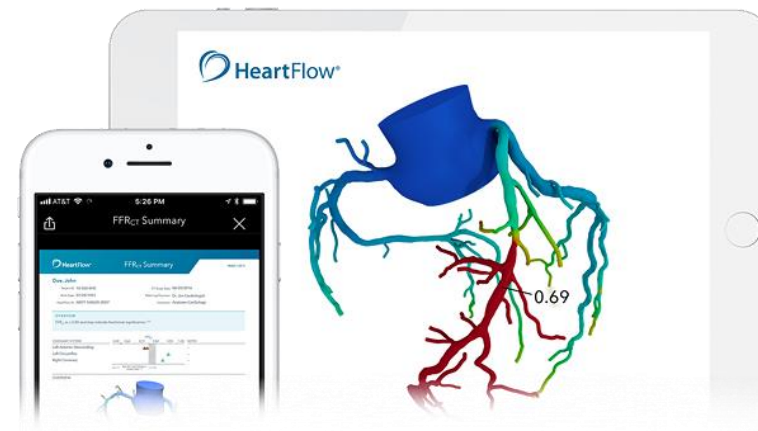
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Source: Virtusense



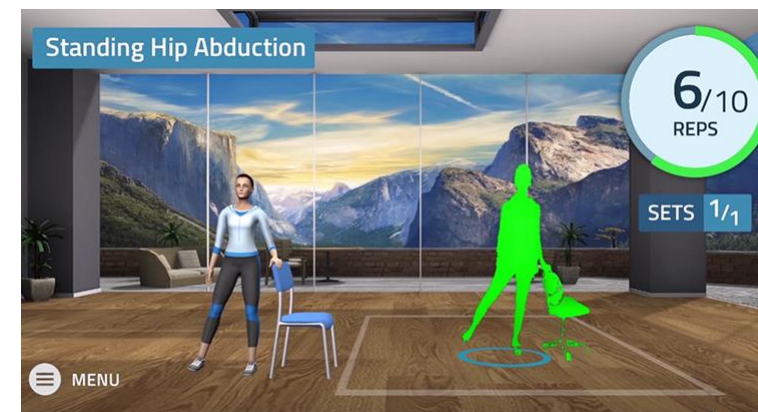
Source: Opternative



Source: HeartFlow



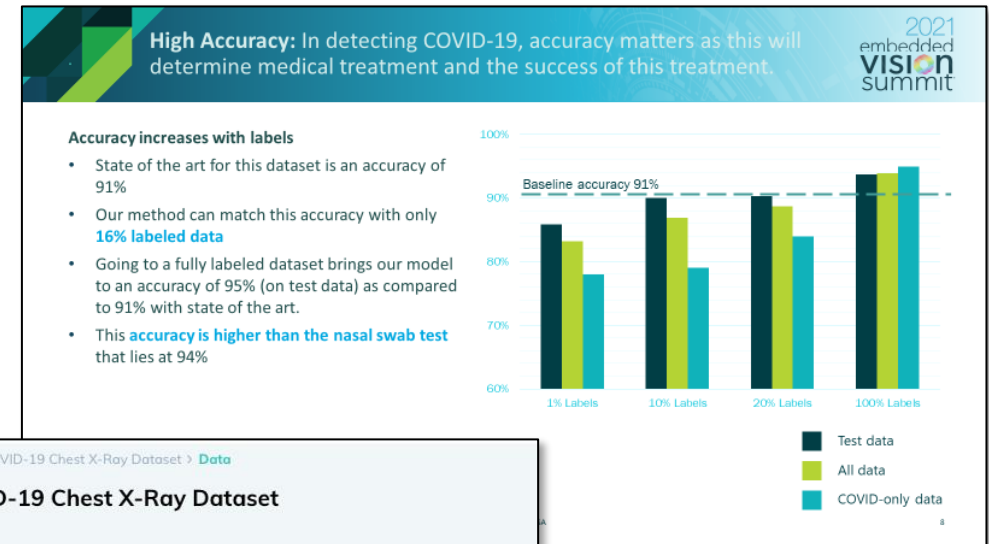
Source: SiGHT Diagnostics



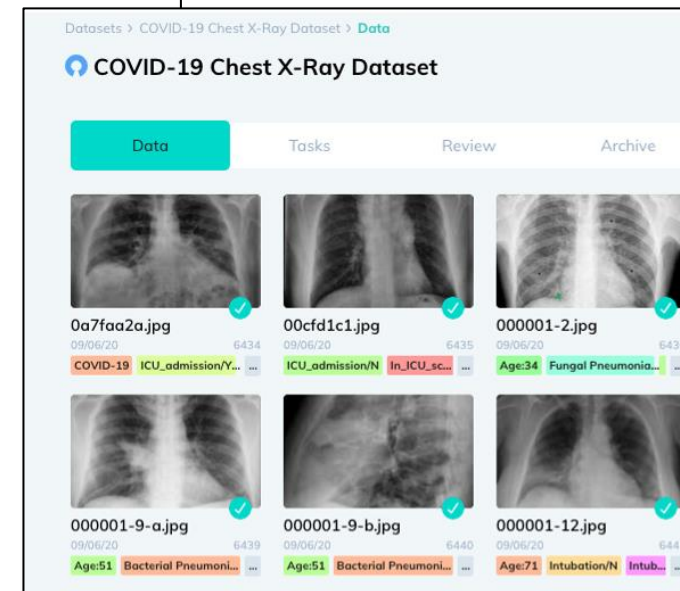
Source: Reflexion Health

Patrick Bangert (Samsung) – Working with Small Datasets

- Amassing data for medical applications can be challenging due to privacy considerations
- Often, we are looking for rare conditions, so data sets are imbalanced
- Using self-supervised feature extraction approach to improve the learning process when the number of images is small
- 95% accurate in detecting COVID from chest X-rays



Source: Patrick Bangert, Samsung



Additional Healthcare-Related Sessions

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BUSINESS INSIGHTS

Improving Nursing Care with Privacy-Sensitive Edge Computer Vision



Harro Stokman
Chief Executive Officer
and Founder
Kepler Vision Technologies



OVER-THE-SHOULDER TUTORIAL

Streamlining Development of Complete Edge AI Solutions via Customizable Reference Software – A Healthcare Use Case



Chen Su
Product Marketing
Engineer
Intel



Adam Bishop
Software Product
Manager
Intel



Vaghesh Patel
Senior Software
Developer
Intel



ENABLING TECHNOLOGIES

A Mask Detection Smart Camera Using the Nvidia Jetson Nano: System Architecture and Developer Experience



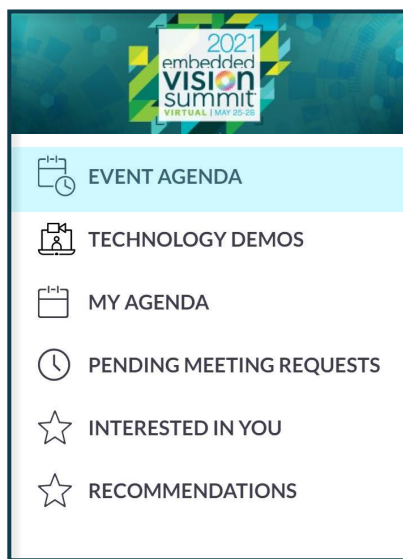
Braulio Ríos
Machine Learning Engineer
Tryolabs



Evan Juras
Machine Learning Engineer
BDTI

Recordings of Previous Live Sessions

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To access recordings of sessions previously presented live, click on “Event Agenda,” then scroll up through the agenda.

Event Agenda

Dates ▾

Tracks ▾


Location ▾

Session recording is available to watch now.
5pm [▶ Watch Recording](#)


Happening Now

All times shown for America/Los_Angeles


Tuesday 25 May


9:00am - 10:00am  Livestream


WELCOME AND KEYNOTE: FROM INFERENCE TO ACTION: AI BEYOND PATTERN RECOGNITION


 Live Streaming

Keynote

**Jeff Bier**
Founder, Edge AI and Vision Alliance / President, BDTI - Edge AI and Vision Alliance

**Pieter Abbeel**
Director, Berkeley Robot Learning Lab and Co-Director, Berkeley Artificial Intelligence Lab - University of California, Berkeley

 Send to calendar

 Added to

On-Demand-Only Content

- 28 high-quality sessions in the **On-Demand Only** section!
- Fundamentals, Technical Insights, and Business Insights tracks

INTRODUCTION TO DNN MODEL COMPRESSION TECHNIQUES

On-Demand Fundamentals

Recording Available



Sabina Pokhrel

Customer Success AI Engineer - Xailient

APPLYING THE RIGHT DEEP LEARNING MODEL WITH THE RIGHT DATA FOR YOUR APPLICATION

On-Demand Technical Insights

Recording Available



Hila Blecher-Segev

Computer Vision and AI Research Associate - Vision Elements

THE TRANSFORMATION FROM IMAGING TO SENSING: DRIVING A MARKET REVOLUTION

On-Demand Business Insights

Recording Available



Pierre Cambou

Principal Analyst - Yole Développement

- EVENT AGENDA
- TECHNOLOGY DEMOS
- MY AGENDA
- MY CONNECTIONS
- MY INTERESTED LIST
- MY SKIP LIST
- ON-DEMAND ONLY CONTENT**

Download Session Slides

23:17

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Recording Available

On-Demand - Fundamentals

Friday 28 May 2021 5:00pm - 5:30pm (America/Los_Angeles)

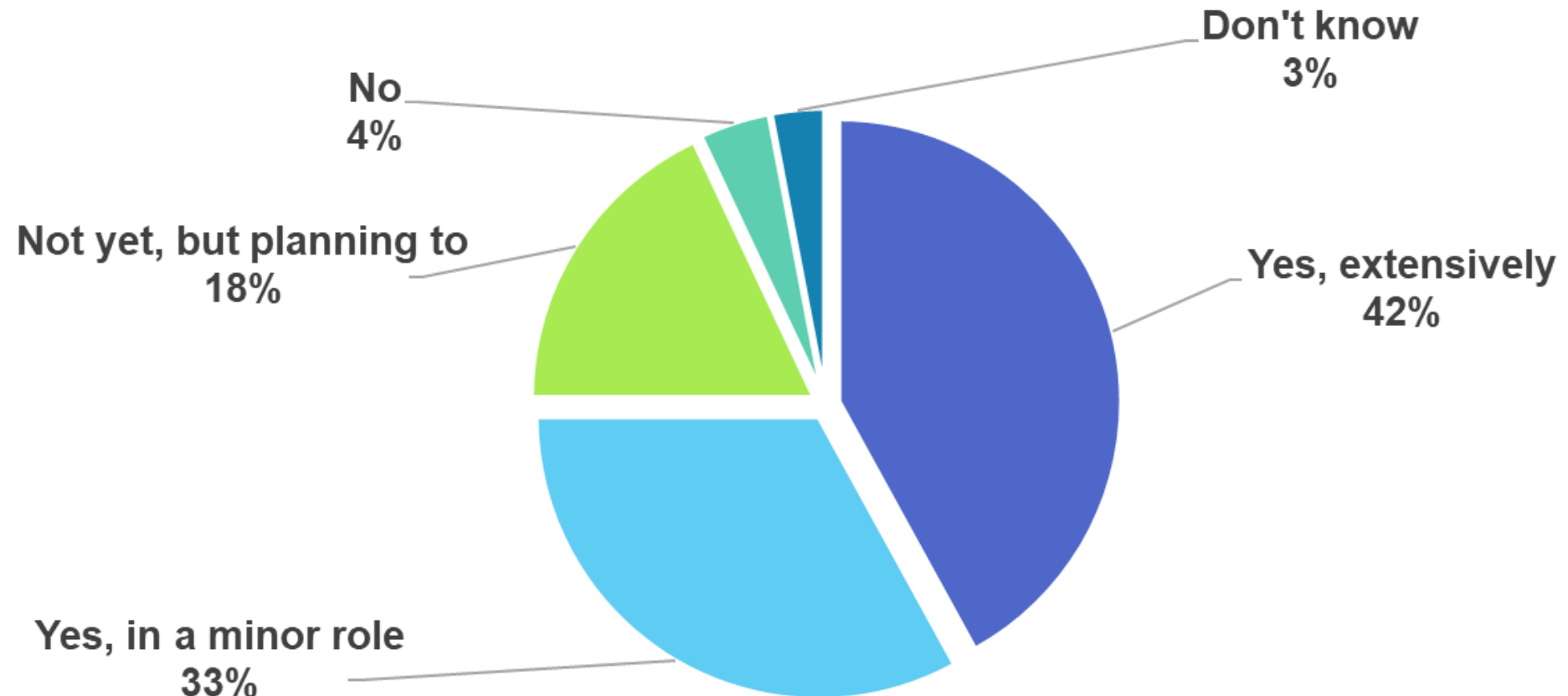
Get Session Content

Add to Schedule

Computer vision requires vision. This is why companies that use computer vision often decide they need to create a custom camera module (and perhaps other custom sensors) that

Click the “Get Session Content” button to download slides after the live session.

Use of Neural Networks in Vision Applications



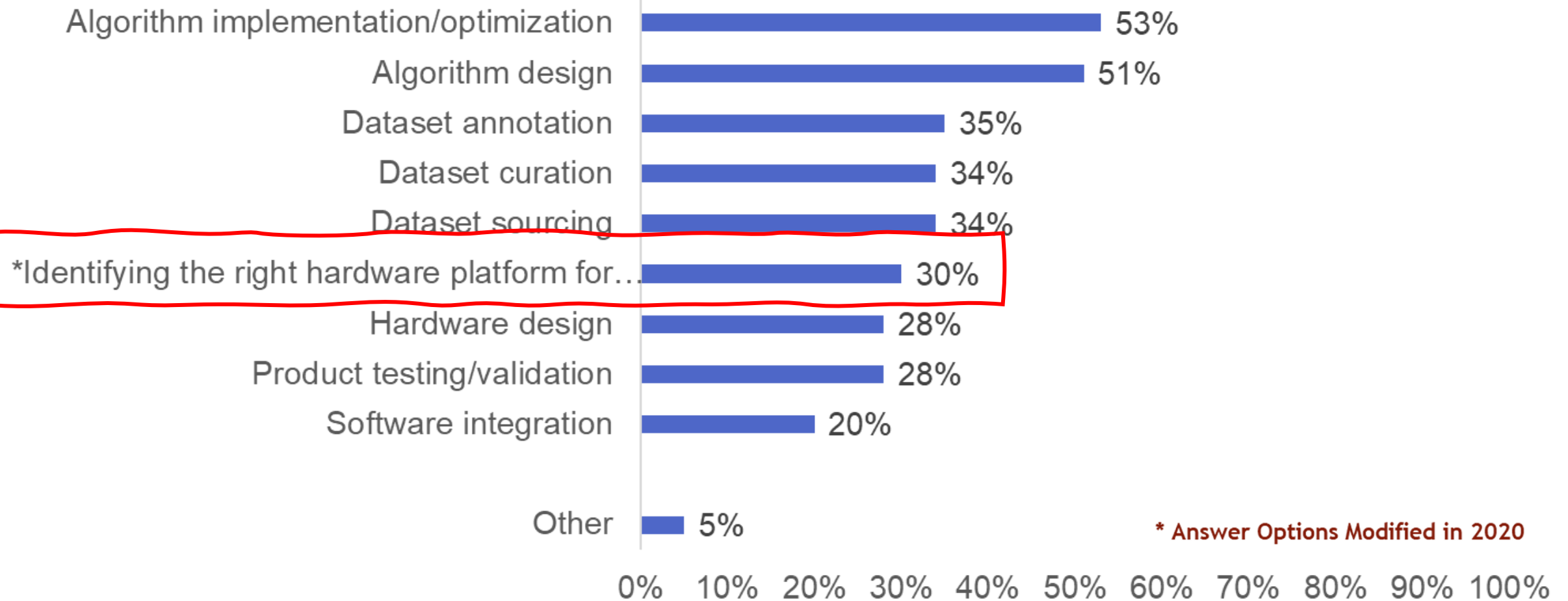
A Golden Era of Embedded AI Processors (From the Embedded Vision and Visual AI Industry Map)

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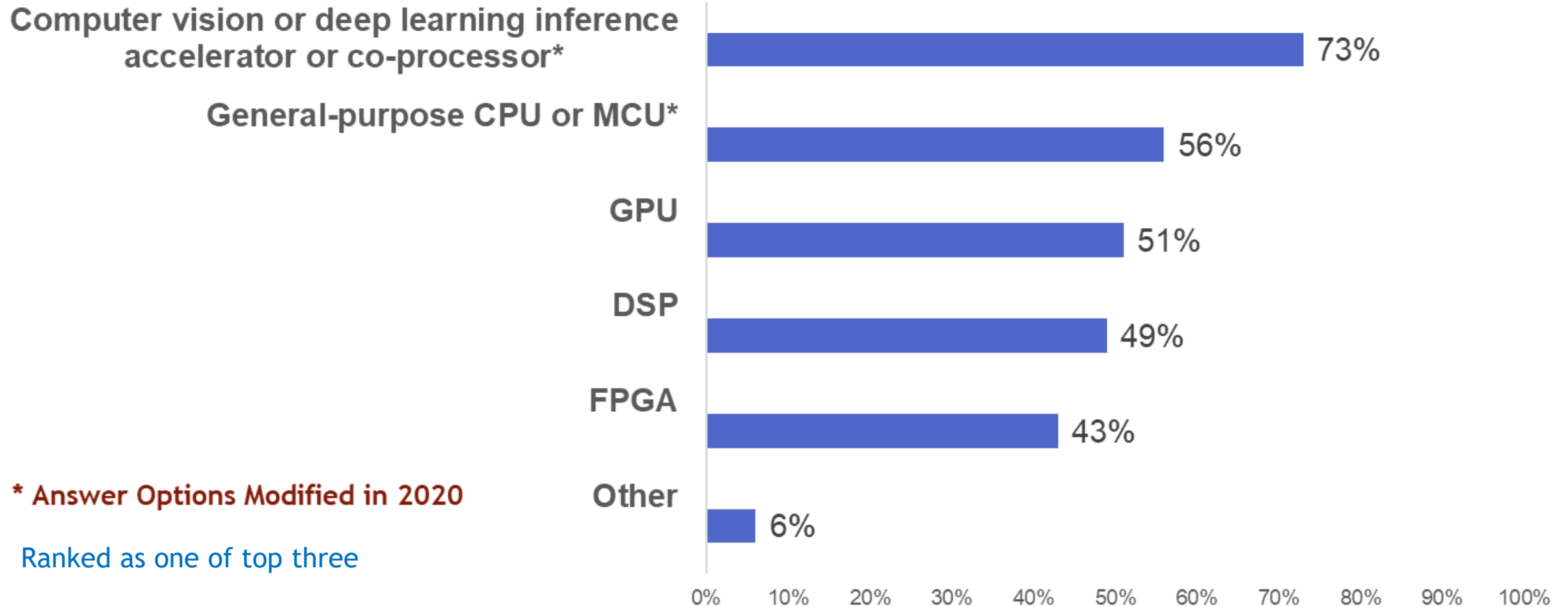
Silicon IP Processors

Most Challenging Areas of Computer Vision Product Development



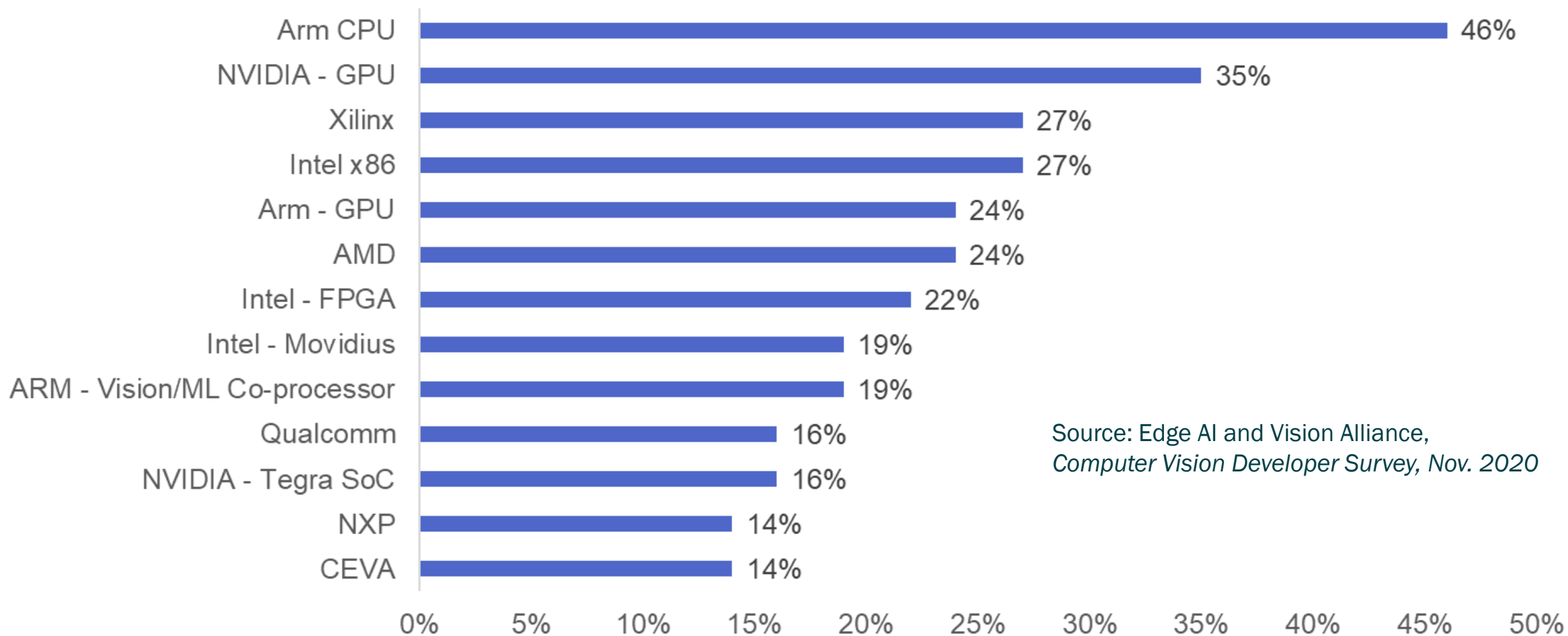
Source: Edge AI and Vision Alliance, *Computer Vision Developer Survey*, November 2020

Type of Processor Used for Deployment of Vision Tasks



Source: Edge AI and Vision Alliance, *Computer Vision Developer Survey, November 2020*

Processors Used for Vision Tasks in Industrial Applications



Source: Edge AI and Vision Alliance,
Computer Vision Developer Survey, Nov. 2020

Algorithms — What We Imagine

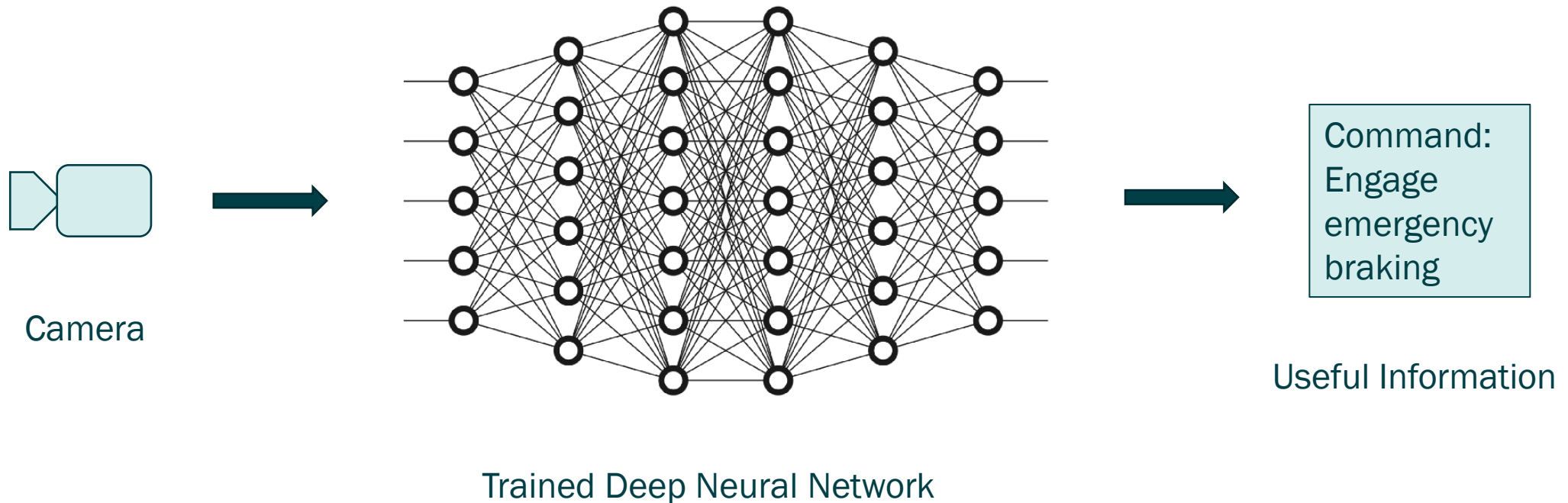
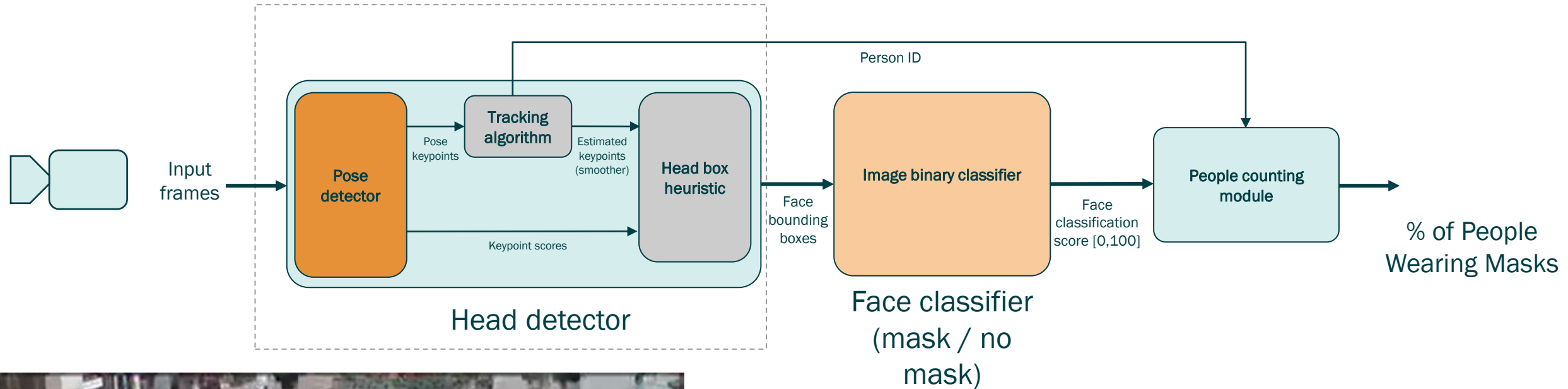


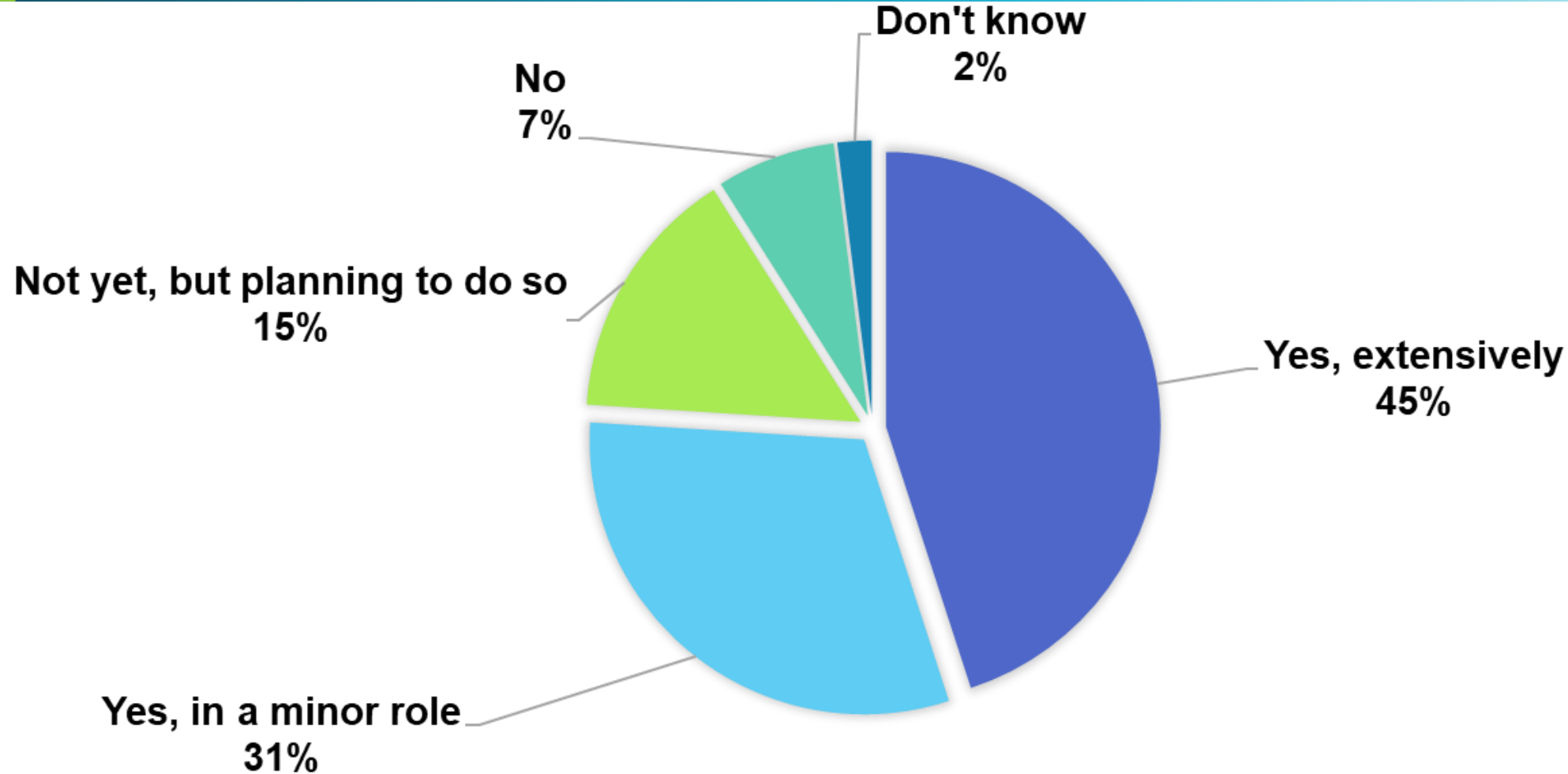
Image: freeCodeCamp.org

Typical Composite Real-World Algorithm

Estimating % of People Wearing Masks



Using Non-Neural Network Algorithms to Perform Computer Vision Functions



Source: Edge AI and Vision Alliance, *Computer Vision Developer Survey*, November 2020

Today's Schedule

DAY 3
Thursday May 27

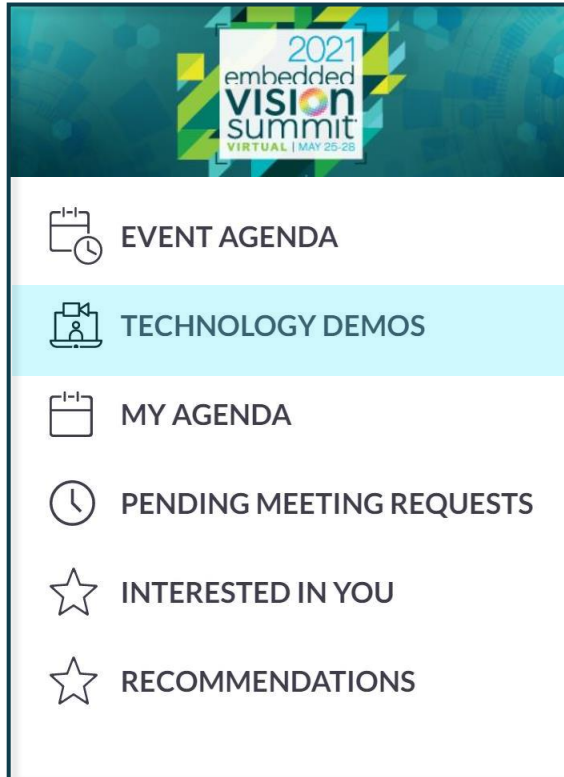
9:00 am - 9:30 am PT **Intro Remarks**

9:30 am - 12:00 pm PT **Presentations**

12:00 pm - 1:00 pm PT **Technology Demos**

1:00 pm - 2:00 pm PT **Presentations**

Fast-Paced Live Technology Demos



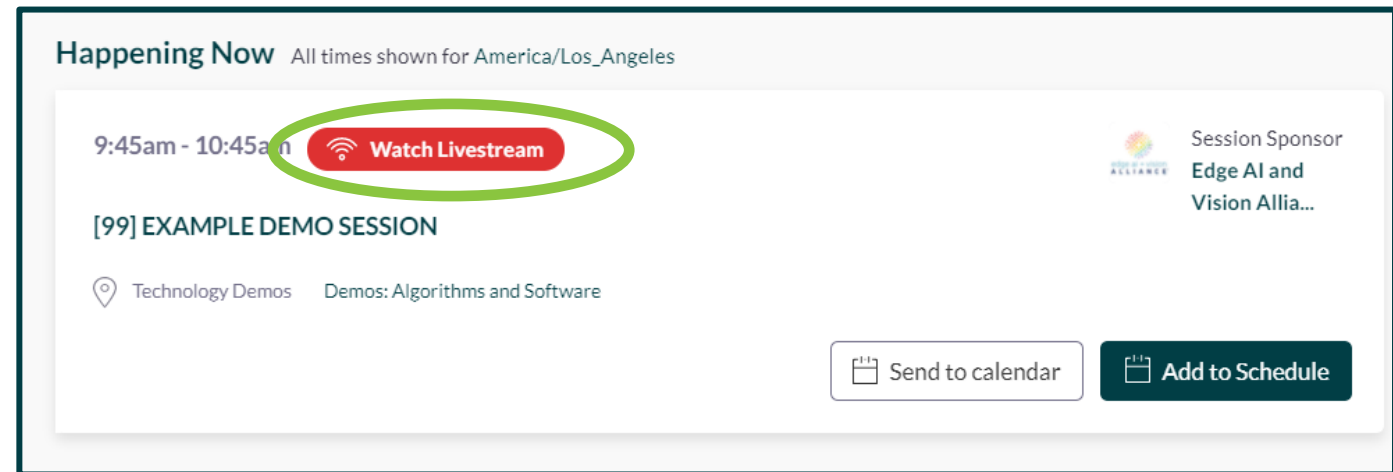
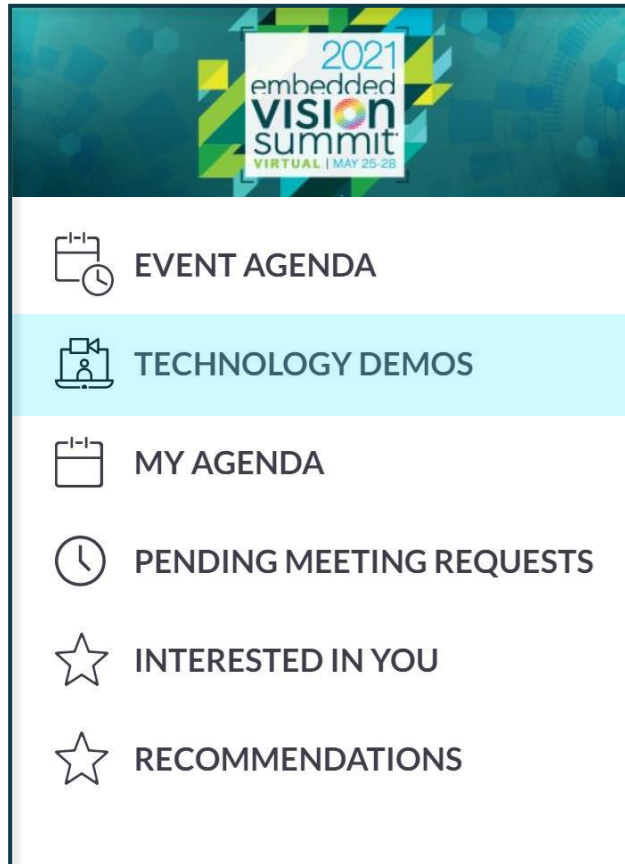
Find the building block technologies **you need with fast-paced, live Technology Demos!**

TODAY!

12:00 pm – 1:00 pm PT

Demos Repeat Every 15 Minutes

Demos will repeat every 15 minutes within their scheduled one-hour live blocks each day. Most demos appear every day of the event.



Are You a Safari User?

Safari users will experience problems connecting to Zoom audio.

Please use a different browser to visit the live Technology Demos.



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 **NVIDIA**

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 **Perceive**

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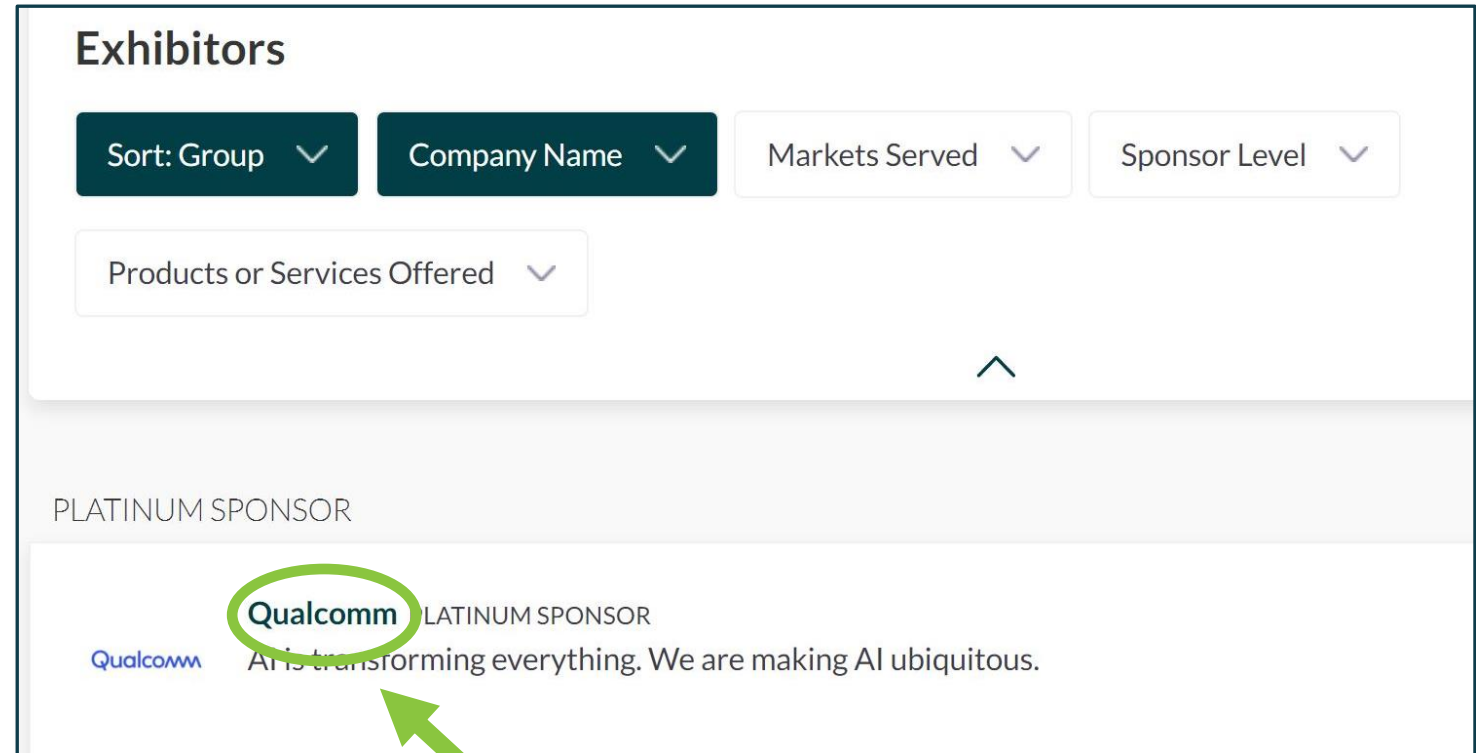
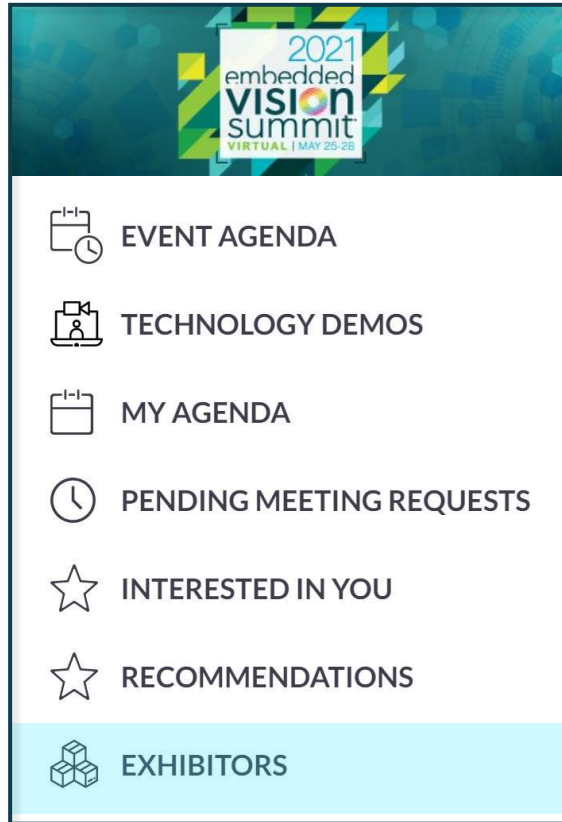
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Tomorrow's Schedule

DAY 4 Friday May 28

9:00 am - 9:30 am PT **Closing Remarks**

9:30 am - 10:00 am PT **Presentations**

10:00 pm - 11:00 am PT **Technology Demos**

11:00 am - 2:00 pm PT **Presentations**

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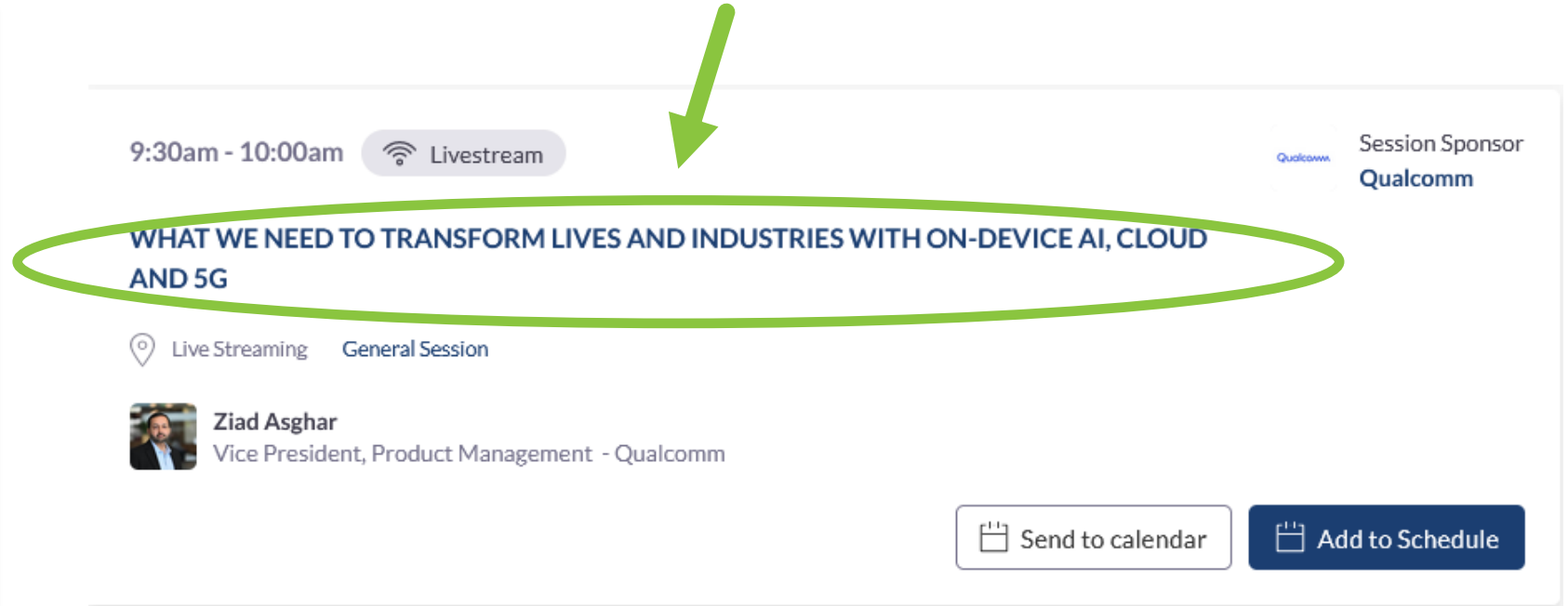
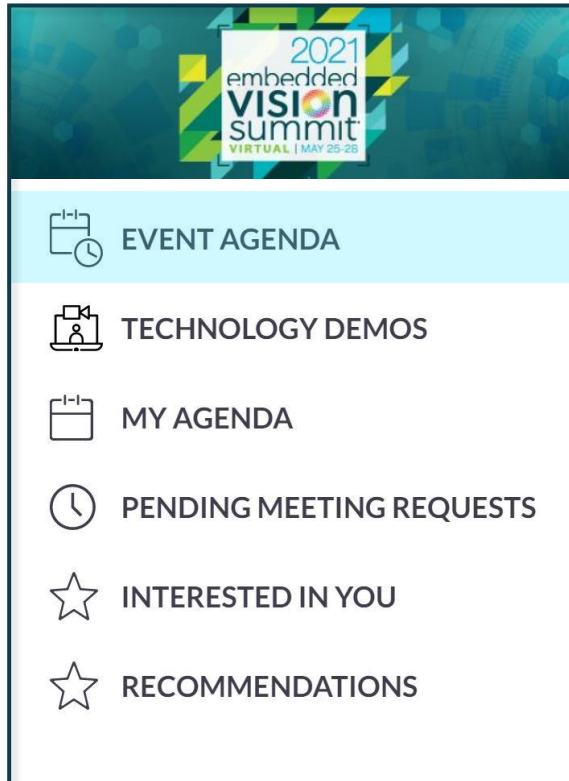
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Find It on the Agenda

Click on the session title for details...



...then press the “play” button to launch the stream.

