MONDAY MAY 21

TensorFlow class requires separate registration

7:30 – 9:00 am
REGISTRATION
MAIN LOBBY

7:30 am – 5:00 pm
SUMMIT REGISTRATION
MAIN LOBBY

8:00 – 9:00 am
COFFEE & PASTRIES
GREAT AMERICA MEETING ROOMS 1 – 3

9:00 am – 5:00 pm
Deep Learning for Computer Vision with TensorFlow
GREAT AMERICA MEETING ROOMS 1 – 3

The first day of the Embedded Vision Summit is dedicated to our new training class: Deep Learning for Computer Vision with TensorFlow. The single-day program will provide you with a hands–on overview of deep learning applications of TensorFlow.

This one-day training covers:
· Introduction to TensorFlow
· Neural Networks in TensorFlow
· Object Recognition in TensorFlow
· Training Data and Issues
· Open Source CNN Models

If you missed this opportunity at the Summit to take charge of your professional development, visit **tensorflow.embedded-vision.com** to find out about upcoming classes.

FEE: $895

Organized by
embedded **VISION** ALLIANCE

TUESDAY MAY 22

7:30 am – 7:00 pm
REGISTRATION

8:00 – 9:00 am
COFFEE & PASTRIES

9:00 – 10:30 am
WELCOME & KEYNOTE MISSION CITY BALLROOM B2 – 5
Think Like an Amateur, Do As an Expert: Lessons from a Career in Computer Vision
Dr. Takeo Kanade
U.A. and Helen Whitaker Professor, Carnegie Mellon University

10:40 am – 12:30 pm
Technical Insights I
MISSION CITY BALLROOM B2 – 5

Technical Insights II
ROOM 203 – 4

Fundamentals
MISSION CITY BALLROOM M1 – 3

Business Insights
THEATER

12:00 – 8:00 pm
Vision Technology Showcase
HALL A1 & HALL B

12:30 – 1:30 pm
LUNCH

1:30 – 6:00 pm
Technical Insights I
MISSION CITY BALLROOM B2 – 5

Technical Insights II
ROOM 203 – 4

Fundamentals
MISSION CITY BALLROOM M1 – 3

Business Insights
THEATER

Enabling Technologies I
HALL A2

Enabling Technologies II
HALL A3

6:00 – 8:00 pm
Vision Technology Showcase Reception
HALL A1 & HALL B
Join us for food, drink & demos!

5:00 – 6:00 pm
Vision Entrepreneur's Panel
THEATER

6:15 – 6:45 pm
Vision Product of the Year Awards
HALL A3

WEDNESDAY MAY 23

7:30 am – 6:00 pm
REGISTRATION

8:00 – 9:00 am
COFFEE & PASTRIES

9:00 – 10:30 am
WELCOME & KEYNOTE MISSION CITY BALLROOM B2 – 5
From Mobility to Medicine: Vision Enables the Next Generation of Innovation
Dean Kamen
Founder, DEKA Research and Development

10:40 am – 12:30 pm
Technical Insights I
MISSION CITY BALLROOM B2 – 5

Technical Insights II
ROOM 203 – 4

Fundamentals
MISSION CITY BALLROOM M1 – 3

Business Insights
THEATER

Enabling Technologies I
HALL A2

Enabling Technologies II
HALL A3

10:30 am – 6:00 pm
Vision Technology Showcase
HALL A1 & HALL B

12:30 – 1:30 pm
LUNCH

1:30 – 6:00 pm
Technical Insights I
MISSION CITY BALLROOM B2 – 5

Technical Insights II
ROOM 203 – 4

Fundamentals
MISSION CITY BALLROOM M1 – 3

Business Insights
THEATER

Enabling Technologies I
HALL A2

Enabling Technologies II
HALL A3

5:00 – 6:00 pm
Vision Tank Competition
THEATER

THURSDAY MAY 24

Workshops require separate registration. Badge pickup is available at times and locations listed below.

8:00 – 9:00 am
COFFEE & PASTRIES

9:00 am – 5:30 pm
Khronos Standards for Neural Networks and Embedded Vision
ROOM 203— *LUNCH IN ROOM 204*

REGISTRATION 8:00 am – 2:00 pm
OUTSIDE ROOM 203
This workshop covers Khronos standards related to neural networks and computer vision. The primary focus is on neural network inference workflows based on the new NNEF (Neural Network Interchange Format) standard.

FEE: $50   Organized by KHRONOS GROUP

8:45 am – 5:30 pm
Artificial Intelligence: From Concept to Implementation
BALLROOM H — *LUNCH IN BALLROOM H FOYER*

REGISTRATION 8:00 am – 2:00 pm
OUTSIDE BALLROOM H
In this workshop, you will learn how the latest advances in deep learning, artificial intelligence and embedded vision are being implemented in designs from automotive ADAS and IoT to industrial design.

FEE: $25   Organized by SYNOPSYS

9:00 am – 5:00 pm
Optimized Inference at the Edge with Intel®
ROOM 209—*LUNCH IN ROOM 210*

REGISTRATION 8:00 am – 2:00 pm
OUTSIDE ROOM 209
This hands-on workshop will take you through a computer vision workflow using the latest Intel® technologies and comprehensive toolkits including support for deep learning algorithms that help accelerate smart video applications.

FEE: $25   Organized by intel

R5 05/18/18

PRESENTATIONS TUESDAY MAY 22

= Invited presentation

Technical Insights I
MISSION CITY BALLROOM B2 – B5

10:40 – 11:10 am
Portability and Performance in Embedded Deep Neural Networks: Can We Have Both?
Cormac Brick, Movidius, an Intel company

11:20 am – 12:20 pm
Words, Pictures and Common Sense: Visual Question Answering
Devi Parikh, Georgia Tech and Facebook AI Research

Technical Insights II
ROOM 203/204

10:40 – 11:10 am
How Simulation Accelerates Development of Self-driving Technology
László Kishonti, AImotive

11:20 – 11:50 am
Computer Vision HW Acceleration for Driver Assistance
Markus Tremmel, Robert Bosch

12:00 – 12:30 pm
Understanding Real-World Imaging Challenges for ADAS and Autonomous Vision Systems— IEEE P2020
Felix Heide, Algolux

Fundamentals
MISSION CITY BALLROOM M1 – M3

10:40 – 11:10 am
Solving Vision Tasks Using Deep Learning: An Introduction
Pete Warden, Google

11:20 am – 12:20 pm
From Feature Engineering to Network Engineering
Auro Tripathy, AMD

Business Insights
THEATER

10:40 – 11:10 am
What's Hot? The M&A and Funding Landscape for Machine Vision Companies
Rudy Burger, Woodside Capital

11:20 – 11:50 am
Ubiquitous $90B AR to Dominate Focused $15B VR by 2022, Becoming a Major Computer Vision Market
Tim Merel, Digi-Capital

12:00 – 12:30 pm
EXECUTIVE PERSPECTIVE Balancing Safety, Convenience and Privacy in the Era of Ubiquitous Cameras
Charlotte Dryden, Intel

Enabling Technologies I
HALL A2

Enabling Technologies II
HALL A3

12:30 – 1:30 pm LUNCH

12:30 – 1:30 pm LUNCH

Technical Insights I

1:30 – 2:30 pm
Even Faster CNNs: Exploring the New Class of Winograd Algorithms
Gian Marco Iodice, Arm

2:50 – 3:20 pm
Developing Computer Vision Algorithms for Networked Cameras
Dukhwan Kim, Intel

3:30 – 4:00 pm
Building a Typical Visual SLAM Pipeline
YoungWoo Seo, Hyperloop-One

4:10 – 4:40 pm
Programming Techniques for Implementing Inference Software Efficiently
Andrew Richards, Codeplay Software

4:50 – 5:20 pm
The OpenVX Computer Vision and Neural Network Inference Library Standard for Portable, Efficient Code
Radhakrishna Giduthuri, AMD

5:30 – 6:00 pm
APIs for Accelerating Vision and Inferencing: Options and Trade-offs
Neil Trevett, Khronos Group and NVIDIA

Technical Insights II

1:30 – 2:00 pm
The Roomba 980: Computer Vision Meets Consumer Robotics
Mario Munich, iRobot

2:10 – 2:40 pm
Deep Understanding of Shopper Behaviors and Interactions Using Computer Vision
Emanuele Frontoni and Rocco Pietrini, Università Politecnica delle Marche

2:50 – 3:50 pm
Getting More from Your Datasets: Data Augmentation, Annotation and Generative Techniques
Peter Corcoran, FotoNation (an Xperi company) and National University of Ireland Galway

4:10 – 4:40 pm
Recognizing Novel Objects in Novel Surroundings with Single-shot Detectors
Alexander C. Berg, UNC Chapel Hill

4:50 – 5:20 pm
Deploying CNN-based Vision Solutions on a $3 Microcontroller
Greg Lytle, Au-Zone Technologies

5:30 – 6:00 pm
How to Get the Labeled Data for Free
Matt King, IUNU

Fundamentals

1:30 – 2:30 pm
Visual-inertial Tracking for AR and VR
Timo Ahonen, Meta

2:50 – 3:50 pm
Understanding and Implementing Face Landmark Detection and Tracking
Jayachandra Dakala, PathPartner Technology

4:10 – 4:40 pm
Building a Practical Face Recognition System Using Cloud APIs
Chris Adzima, Washington County Sheriff's Office

4:50 – 5:20 pm
Bad Data, Bad Network, or: How to Create the Right Dataset for Your Application
Mike Schmit, AMD

5:30 – 6:00 pm
Introduction to Creating a Vision Solution in the Cloud
Nishita Sant, GumGum

Business Insights

1:30 – 2:00 pm
Reduce Risk in Computer Vision Design: Focus on the User
Paul Duckworth, Twisthink

2:10 – 2:40 pm
Data-driven Business Models Enabled by 3D Vision Technology
Christopher Scheubel, FRAMOS

2:50 – 3:20 pm
EXECUTIVE PERSPECTIVE Leveraging Edge and Cloud for Visual Intelligence Solutions
Salil Raje, Xilinx

3:30 – 4:00 pm
From 2D to 3D: How Depth Sensing Will Shape the Future of Vision
Guillaume Girardin, Yole Développement

4:10 – 4:40 pm
EXECUTIVE PERSPECTIVE Embedded AI for Smart Cities and Retail in China
Kai Yu, Horizon Robotics

5:00 – 6:00 pm
Vision Entrepreneurs' Panel
Moderator:
Nik Gagvani
President, CheckVideo

Radha Basu
CEO, iMerit

Gary Bradski
CTO, Arraiy & CEO, OpenCV.org

László Kishonti
CEO, AImotive

Enabling Technologies I

1:30 – 2:00 pm
Machine Learning Inference in Under 5 mW with a Binarized Neural Network on an FPGA
Abdullah Raouf, Lattice

2:10 – 2:40 pm
EXECUTIVE PERSPECTIVE Energy-efficient Processors Enable the Era of Intelligent Devices
Ren Wu, NovuMind

2:50 – 3:20 pm
High-end Multi-camera Technology, Applications and Examples
Max Larin, Ximea

3:30 – 4:00 pm
Mythic's Analog Deep Learning Accelerator Chip: High Performance Inference
Frederick Soo, Mythic

4:10 – 4:40 pm
Programmable CNN Acceleration in Under 1 Watt
Gordon Hands, Lattice

4:50 – 5:20 pm
A Physics-based Approach to Removing Shadows and Shading in Real Time
Bruce Maxwell, Tandent Vision Science

5:30 – 6:00 pm
At the Edge of AI at the Edge: Ultra Efficient AI on Low-power Compute Platforms
Mohammad Rastegari, XNOR.ai

Enabling Technologies II

1:30 – 2:00 pm
A New Generation of Camera Modules: A Novel Approach and Its Benefits for Embedded Systems
Paul Maria Zalewski, Allied Vision

2:10 – 2:40 pm
Enabling Cross-platform Deep Learning Applications with the Intel CV SDK
Yury Gorbachev, Intel

2:50 – 3:20 pm
Achieving High-performance Vision Processing for Embedded Applications with Qualcomm SoC Platforms
Sahil Bansal, Qualcomm

3:30 – 4:00 pm
Infusing Visual Understanding in Cloud and Edge Solutions Using State-of-the-Art Microsoft Algorithms
Anirudh Koul and Jin Yamamoto, Microsoft

4:10 – 4:40 pm
Rapid Development of Efficient Vision Applications Using the Halide Language and CEVA Processors
Yair Siegel, CEVA and Gary Gitelson, mPerpetuo, Inc.

Don't miss the Vision Technology Showcase Reception 6:00 pm – 8:00 pm for food, drink and demos!

Don't miss the Vision Technology Showcase Reception 6:00 pm – 8:00 pm for food, drink and demos!

Technical Insights I
MISSION CITY BALLROOM B2 – B5

10:40 – 11:10 am
Deep Quantization for Energy Efficient Inference at the Edge
Hoon Choi, Lattice

11:20 am – 12:20 pm
⬤ **What is Neuromorphic Event-based Computer Vision? Sensors, Theory and Applications**
Ryad B. Benosman, University of Pittsburgh Medical Center, Carnegie Mellon University and Sorbonne Universitas

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1:30 – 2:00 pm
Real-time Calibration for Stereo Cameras Using Machine Learning
Sheldon Fernandes, Lucid VR

2:10 – 2:40 pm
Building Efficient CNN Models for Mobile and Embedded Applications
Peter Vajda, Facebook

2:50 – 3:20 pm
Utilizing Neural Networks to Validate Display Content in Mission Critical Systems
Shang-Hung Lin, VeriSilicon

3:30 – 4:00 pm
Role of the Cloud in Autonomous Vehicle Vision Processing: A View from the Edge
Ali Osman Ors, NXP

4:10 – 4:40 pm
⬤ **Generative Sensing: Reliable Recognition from Unreliable Sensor Data**
Lina Karam, Arizona State University

4:50 – 5:20 pm
Creating a Computationally Efficient Embedded CNN Face Recognizer
G.B. Praveen, PathPartner Technology

Technical Insights II
ROOM 203/204

10:40 – 11:10 am
The Perspective Transform in Embedded Vision
Aditya Joshi and Shrinivas Gadkari, Cadence

11:20 – 11:50 am
Harnessing the Edge and the Cloud Together for Visual AI
Sébastien Taylor, Au-Zone Technologies

12:00 – 12:30 pm
New Deep Learning Techniques for Embedded Systems
Tom Michiels, Synopsys

1:30 – 2:00 pm
⬤ **Implementing Image Pyramids Efficiently in Software**
Michael Stewart, Polymorphic Technologies

2:10 – 2:40 pm
Architecting a Smart Home Monitoring System with Millions of Cameras
Hongcheng Wang, Comcast

2:50 – 3:20 pm
Improving and Implementing Traditional Computer Vision Algorithms Using DNN Techniques
Paul Brasnett, Imagination Technologies

3:30 – 4:00 pm
Hybrid Semi-parallel Deep Neural Networks (SPDNN)—Example Methodologies and Use Cases
Peter Corcoran, FotoNation (an Xperi company) and National University of Ireland Galway

Fundamentals
MISSION CITY BALLROOM M1 – M3

10:40 – 11:10 am
Understanding Automotive Radar: Present and Future
Arunesh Roy, NXP

11:20 am – 12:20 pm
Depth Cameras: A State-of-the-Art Overview
Carlo Dal Mutto, Aquifi

1:30 – 2:30 pm
⬤ **Approaches for Energy Efficient Implementation of Deep Neural Networks**
Vivienne Sze, MIT

2:50 – 3:50 pm
Introduction to Optics for Embedded Vision
Jessica Gehlhar, Edmund Optics

4:10 – 4:40 pm
Introduction to Lidar for Machine Perception
Mohammad Musa, DeepenAI

4:50 – 5:20 pm
Designing Vision Front Ends for Embedded Systems
Friedrich Dierks, Basler

5:30 – 6:00 pm
Optimize Performance: Start Your Algorithm Development with the Imaging Subsystem
Ryan Johnson, Twisthink

12:30 – 1:30 pm LUNCH

Business Insights
THEATER

10:40 – 11:10 am
Leveraging Cloud Computer Vision for a Real-time Consumer Product
Pavan Kumar, Cocoon Cam

11:20 – 11:50 am
Using Vision to Transform Retail
Sumit Gupta, IBM

12:00 – 12:30 pm
Computer Vision for Industrial Inspection: The Evolution from PCs to Embedded Solutions
Thomas Däubler, NET New Electronic Technology GmbH

1:30 – 2:00 pm
⬤ EXECUTIVE PERSPECTIVE
Building up a Start-up in Embedded Vision: Lessons from Machine Vision
Arndt Bake, Basler

2:10 – 2:40 pm
The Four Key Trends Driving the Proliferation of Visual Perception
Jeff Bier, Embedded Vision Alliance and BDTI

2:50 – 3:20 pm
⬤ **Overcoming Bias in Computer Vision— A Business Imperative**
Will Byrne, Entrepreneur

3:30 – 4:00 pm
⬤ **Intelligent Consumer Robots Powering the Smart Home**
Mario Munich, iRobot

5:00 – 6:00 pm
Vision Tank Start-up Competition
AiFi   Presented by João Diogo Falcão

Aquifi   Presented by Carlo Dal Mutto

Boulder AI   Presented by Dan Connors

Sturfee   Presented by Anil Cheriyadat

VirtuSense Technologies Presented by Deepak Gaddipati

Enabling Technologies I
HALL A2

10:40 – 11:10 am
Designing Smarter, Safer Cars with Embedded Vision
Fergus Casey, Synopsys

11:20 – 11:50 am
Neural Network Compiler: Enabling Rapid Deployment of DNNs on Low-cost, Low-power Processors
Megha Daga, Cadence

12:00 – 12:30 pm
New Memory-centric Architecture Needed for AI
Sylvain Dubois, Crossbar

1:30 – 2:00 pm
Enabling Software Developers to Harness FPGA Compute Accelerators
Bernhard Friebe, Intel

2:10 – 2:40 pm
Deep Learning in MATLAB: From Concept to Optimized Embedded Code
Girish Venkataramani and Avi Nehemiah, MathWorks

2:50 – 3:20 pm
Achieving 15 TOPS/s Equivalent Performance in Less Than 10 W Using Neural Network Pruning on Xilinx Zynq
Nick Ni, Xilinx

3:30 – 4:00 pm
NovuTensor: Hardware Acceleration of Deep Convolutional Neural Networks for AI
Mike Li, NovuMind

4:10 – 4:40 pm
The Journey and Sunrise Processors: Leading-edge Performance for Embedded AI
Kai Yu, Horizon Robotics

Enabling Technologies II
HALL A3

10:40 – 11:10 am
Deep Learning on Arm Cortex-M Microcontrollers
Vikas Chandra, Arm

11:20 – 11:50 am
Rethinking Deep Learning: Neural Compute Stick
Ashish Pai, Intel

12:00 – 12:30 pm
Project Trillium: A New Suite of Machine Learning IP from Arm
Steve Steele, Arm

1:30 – 2:00 pm
Embedding Programmable DNNs in Low-power SoCs
Petronel Bigioi, FotoNation (an Xperi company)

2:10 – 2:40 pm
Exploiting Reduced Precision for Machine Learning on FPGAs
Kees Vissers, Xilinx

2:50 – 3:20 pm
Optimizing Your System Software and BSP for Embedded Vision and AI
Daniel Sun, ThunderSoft

3:30 – 4:00 pm
Pilot AI Vision Framework: From Doorbells to Defense
Jonathan Su, Pilot AI

12:30 – 1:30 pm LUNCH