

tinyML Summit

Advances in ultra-low power Machine Learning technologies and applications

March 20-21, 2019. Google, Sunnyvale, CA

Both days will be held at 111 W. Java Drive, Sunnyvale, CA

Wednesday, March 21

7:30 am – 8:30 am

Registration and Breakfast

8:30 am – 8:45 am

Welcome and Opening Remarks

8:45 am – 10:30 am

Hardware and Architectures

Session Leader: Ian Bratt, Distinguished Engineer, Arm

From Small to Tiny: How to Co-design ML Models, Computational Precision and Circuits in the Energy-Accuracy Trade-off Space

Marian Verhelst, Associate Professor, MICAS laboratories (MICro-electronics And Sensors), Electrical Engineering Department, KU Leuven

The Next Level of Energy-efficient Edge Computing

Simon Craske, Arm Fellow and Lead Embedded Architect, ARM

Ultra Low Power Inference at the Very Edge of the Network

Eric Flamand, CTO, Greenwaves Technologies

What Can In-memory Computing Deliver, and What Are the Barriers?

Naveen Verma, Professor, Princeton University

10:30 am – 11:00 am

Break

11:00 am – 12:40 pm

Systems and Algorithms

Session Leader: Boris Murmann, Professor of Electrical Engineering, at Stanford University

Better Learning Through Specialization

Bill Chappell, Microsystems Technology Office (MTO), Office Director, DARPA

Ultra-low Always-On Computer Vision

Edwin Park, Principal Engineer, Qualcomm

Machine Learning Accelerators for IoT² Devices

Prof. Dennis Sylvester, Electrical Engineering and Computer Science, University of Michigan

Systems and Algorithms (continued)

Next Frontier in CMOS Imaging – Always ON Sensing

Charles Chong, Director, PixArt Imaging

Efficient Voice Trigger Detection for Low Resource Hardware

Kisun You, Senior Realtime Software Engineer, Siri Speech, Apple

12:40 pm – 2:30 pm

Lunch, Poster Session/Demos, Networking

2:30 pm – 4:30 pm

Software and Applications

Session Leader: Kurt Keutzer, Professor, University of California, Berkeley

ELL: the Microsoft Embedded Learning Library

Byron Changuion, Principal Engineering Manager, Machine Learning and Optimization Group
Microsoft Research AI

TF-lite for tinyML

Pete Warden, Technical Lead, TensorFlow Mobile and Embedded Team, Google

Visual AI in Milliwatts: A Grand Challenge and a Massive Opportunity

Jeff Bier, Founder, Embedded Vision Alliance

Ultra-Low-Power Command Recognition for Ubiquitous Devices

Chris Rowen, CEO, BabbleLabs

Transforming Epilepsy from a Chronic Condition Towards an Acute One Using tinyML

Hans DeClerq, CTO, Byteflies

4:30 pm – 6:15 pm

Poster Session/Demos, Networking

6:15 pm

Dinner

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Thursday, March 21

Breakfast/Poster and Demos/Networking

8:00 am – 9:00 am

tinyML State of Technology: Summary and Highlights of Summit Day 1 to be presented by:

9:00 am – 10:00 am

- **Hardware and Architectures**
Ian Bratt, Arm
- **System and Algorithms**
Boris Murmann, Stanford University
- **Software and Application**
Kurt Keutzer, University of California, Berkeley

Break/Poster and Demos

10:00 am – 10:30 am

Two Panels and Audience Discussions

10:30 am – 11:45 am

Moderator, Chris Rowen, BabbleLabs

- tinyML Applications: opportunities and challenges
- tinyML Ecosystem development

Break/Poster and Demos

11:45 am – 12:00 pm

Concluding Session: tinyML “State-of-the-Union” and Calls to Action

12:00 pm – 12:15 pm

Lunch/Networking

12:15 pm – 1:30 pm