

ARM KNOWLEDGE LAB: DESIGNING THE FUTURE

DAY 2

Graph-based UX workflows for AI model development with DEEPCRAFT™
Andreas Nimmerfroh, Imagimob

Arm Knowledge Lab: Three short and compact sessions



Day 1

Secure by Design – From
Threats to Trusted Devices



Day 2

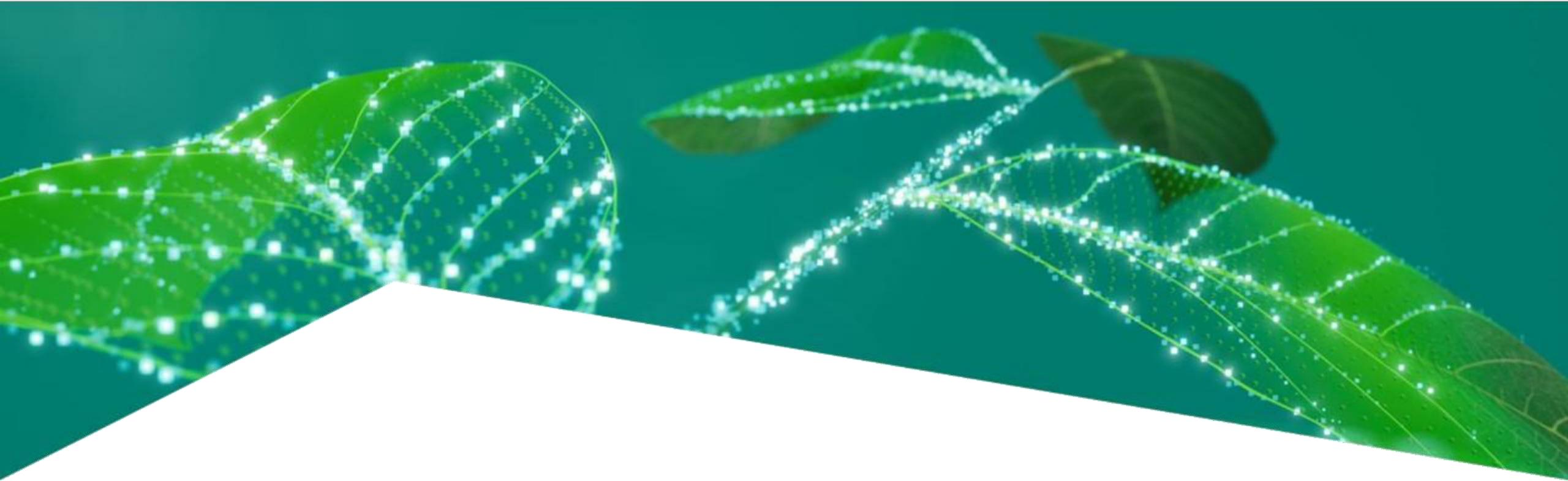
AI at the Edge – Building
Smarter Embedded Systems



Day 3

Safety-Critical Systems –
Engineering Reliability

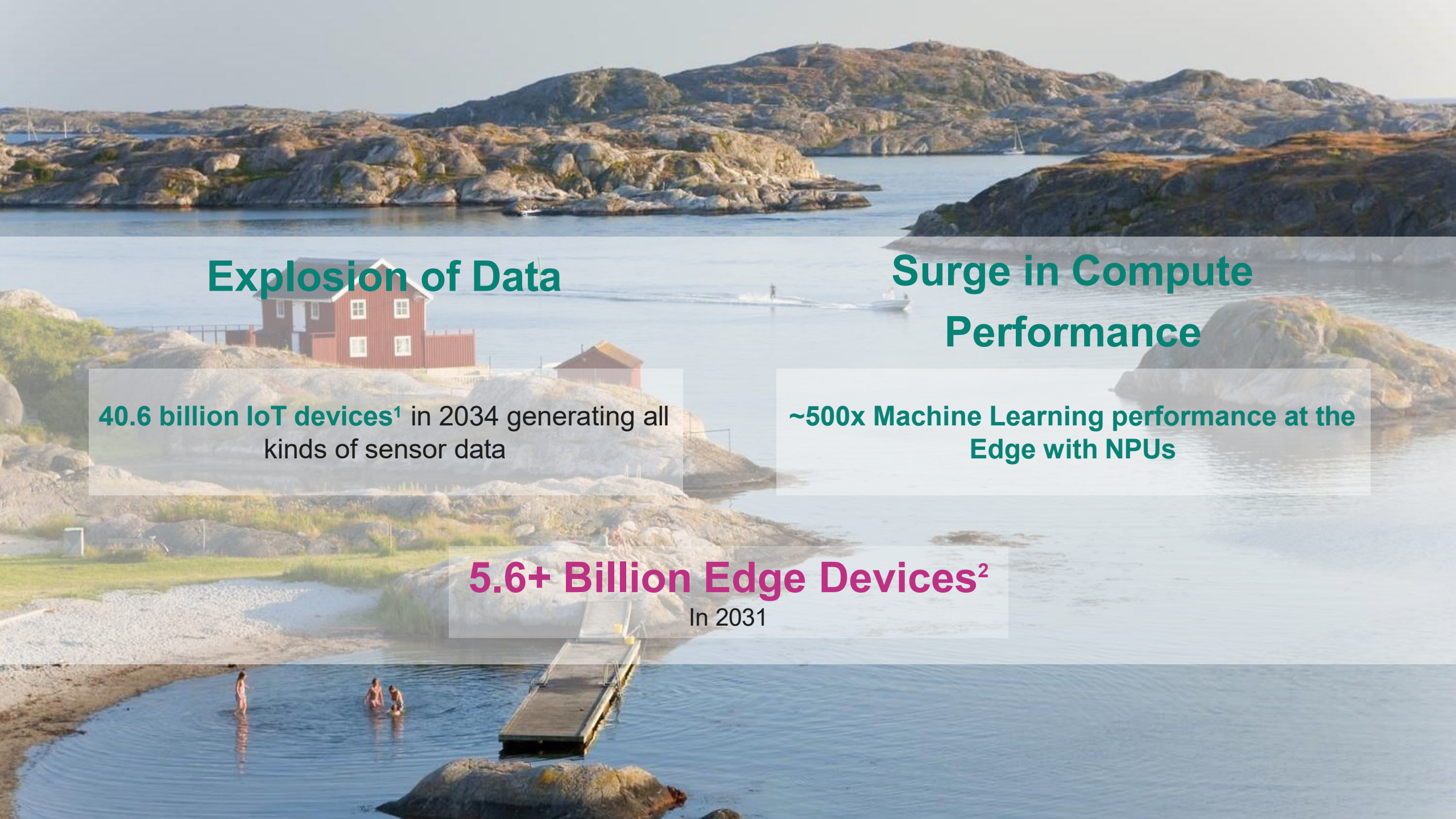
Find more presentations from our Arm Knowledge Lab:
<https://www2.hitex.com/arm-knowledge-lab-2026-download>



The advantages of graph-based workflows for Edge AI development

Andreas Nimmerfroh (ES IMAG)
Infineon Machine Learning





Explosion of Data

40.6 billion IoT devices¹ in 2034 generating all kinds of sensor data

Surge in Compute Performance

~500x Machine Learning performance at the Edge with NPUs

5.6+ Billion Edge Devices²

In 2031

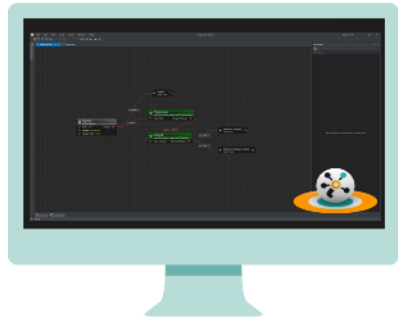
DEEPCRAFT™ AI Suite is your fast-track to intelligent, low-power Edge AI products



DEEPCRAFT™ products provide **innovative, trustworthy, convenient and green AI** software solutions for customers. Our **portfolio** offers **end-to-end Edge AI** and **best-in-class system performance in combination with Infineon Hardware**.

Platform & Tools

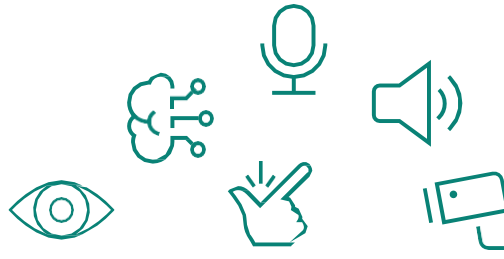
For data collection & pre-processing,
model training, model conversion &
deployment



DEEPCRAFT™ Studio
20+ DEEPCRAFT™ Studio Accelerators
DEEPCRAFT™ Model Converter

Solutions

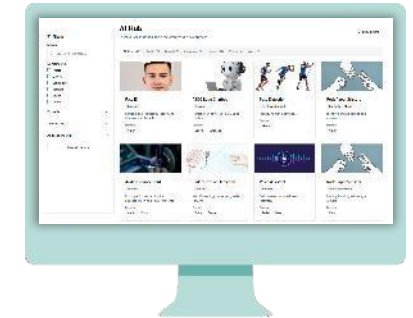
Collection of high value tools, models and
configurators to add AI-based capabilities. Range
across sensor and data types, from off-the-shelf to
customizable solutions.



DEEPCRAFT™ Ready Models
DEEPCRAFT™ Audio Enhancement
DEEPCRAFT™ Voice Assistant

DEEPCRAFT™ AI Hub

Find the DEEPCRAFT™ Studio platform,
plus the models, demos, solutions, tools
and more that you need all in one
centralized hub.

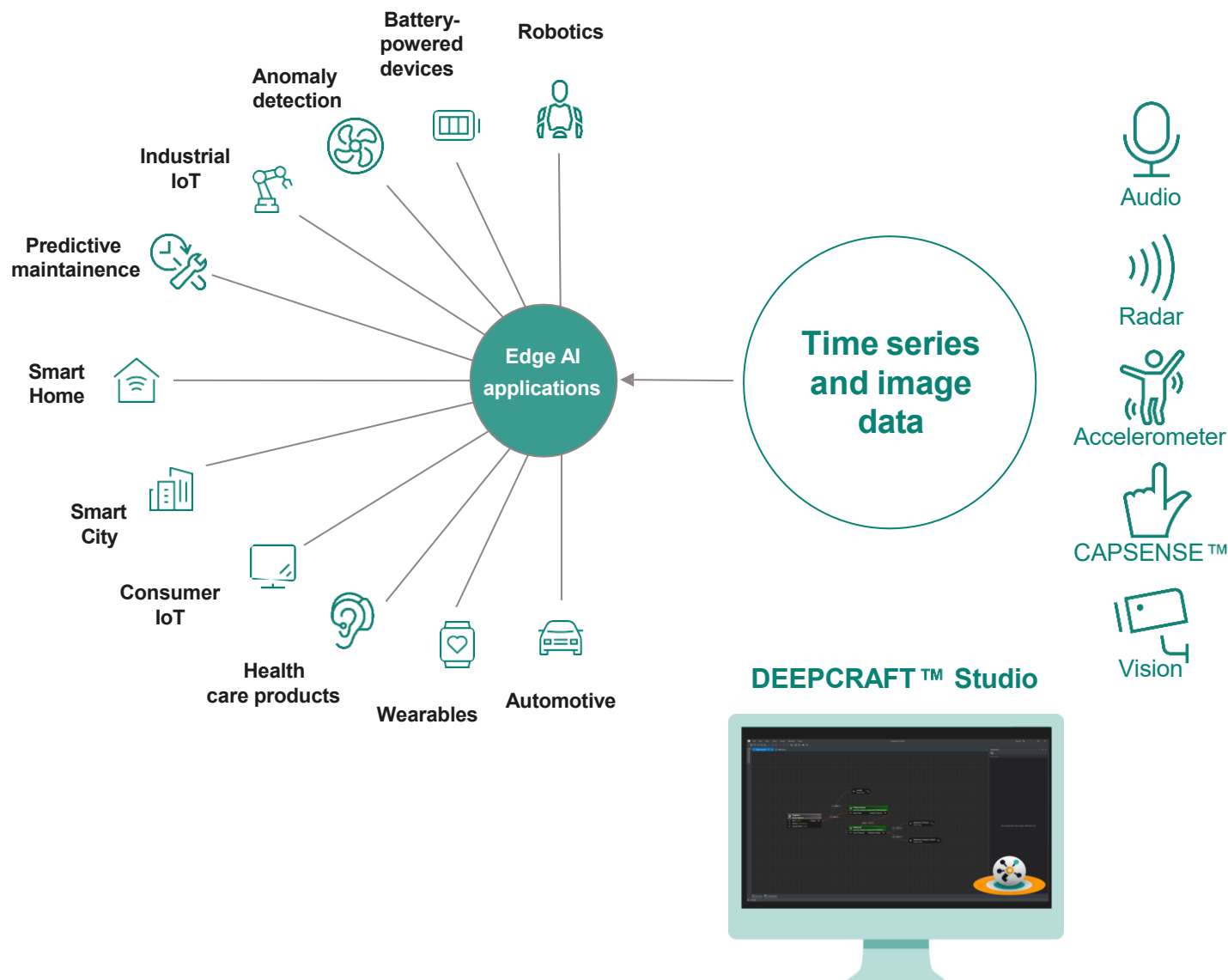


**Find the DEEPCRAFT™ AI Suite, open-
source models, and more. Everything
Edge AI in one place!**

DEEPCRAFT™ Studio is an Edge AI development platform

DEEPCRAFT™ Studio

- Train **production-grade custom Edge AI models** with our state-of-the-art platform
- Designed for machine learning (ML) **experts and beginners**
- Leverage pre-trained Studio Accelerators for **shorter time to production**
- Transparent data policy **protects your IP**
- Graph UX interface provides **unique insight** during ML development process
- Focuses on **deep learning**, leveraging modern neural processing units for **enhanced and optimized AI capabilities**



Differentiating capabilities of a graphical UX

Core Idea and Motivation



Graph-based workflows



Non-linear interaction



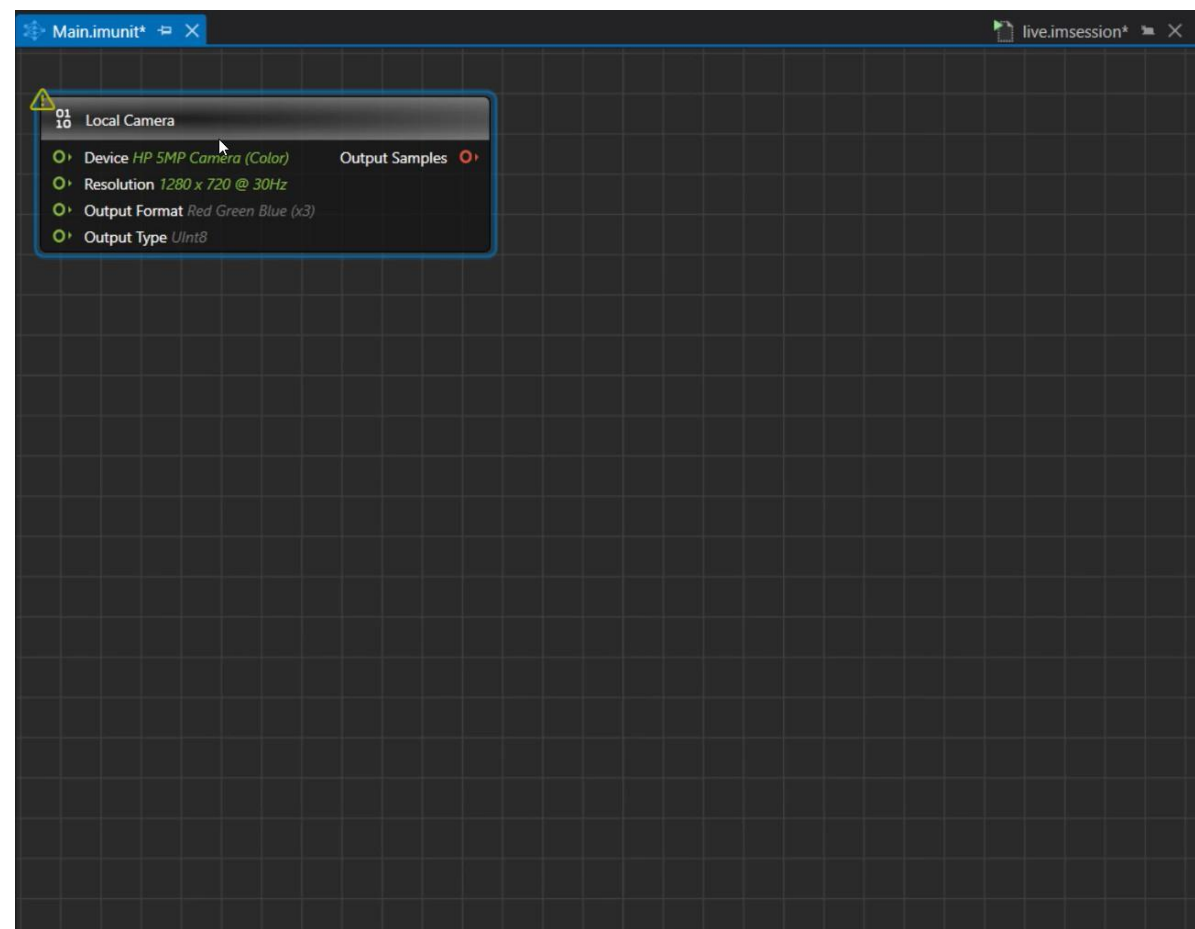
Insight into processes



Visual programming



Increased flexibility and degrees of freedom



Differentiating capabilities of a graphical UX

Unified workflow

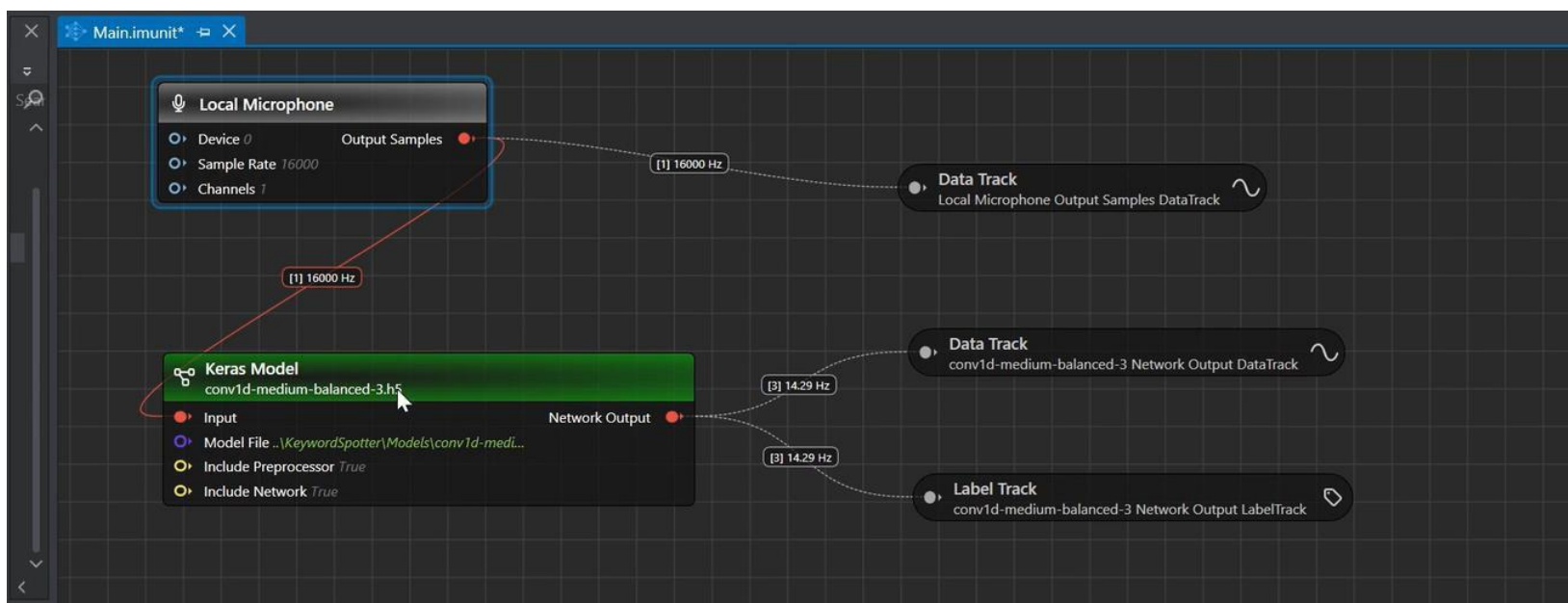
- Same workflow from data collection to code generation
- Paradigm that both ML Eng and Embedded Eng are used to
- Work at different abstraction levels

Use-case support

- Multiple input/output
 - True multi-modality/multi sensor models
 - Supporting modern model architectures
- Graphs including parallelism and branching
 - Support multi-models in parallel/sequence
 - Multi-paths in preprocessing/post processing

Data Management

- Organizing project data into multiple data sets (not capped to fixed number)
- Stages of data (Raw original data can be followed by processed version or training output etc)



Differentiating capabilities of a graphical UX

Data processing

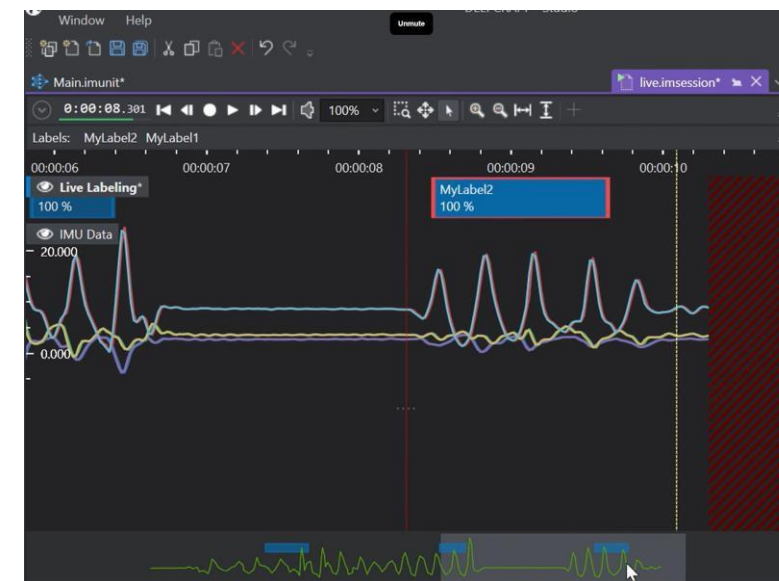
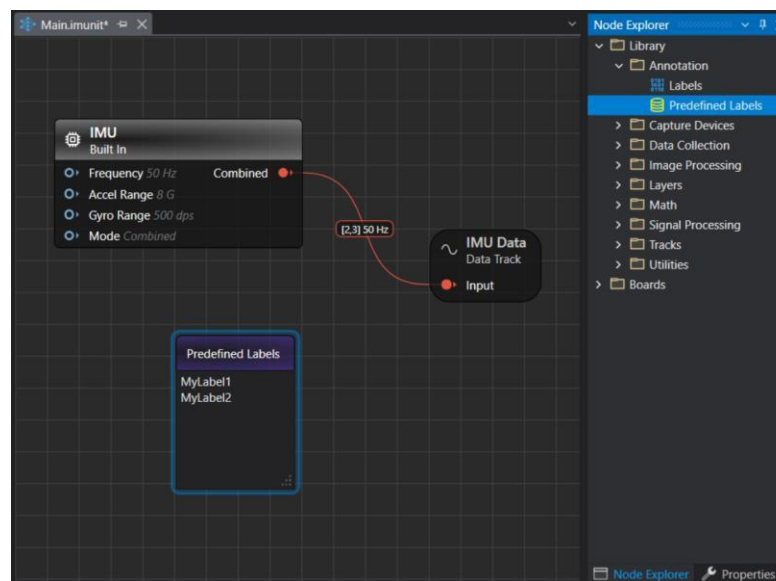
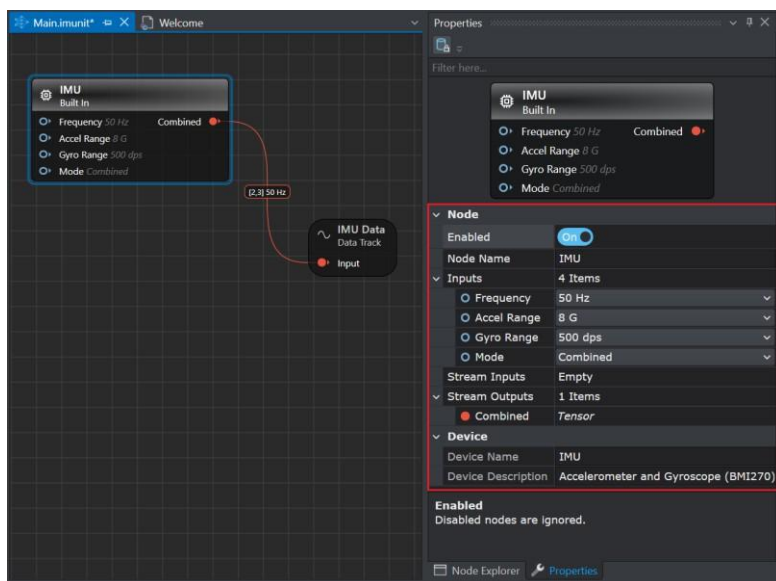
- Built-in data processing (normalization, augmentation, filtering etc.)
- Custom data processing
 - Custom graphs
 - Custom nodes in C
 - Custom nodes in Python

Enter/leave at any point

- Data collection
- Data processing
- Training
- Model evaluation
- Code generation

Training

- Custom training images
- Custom training scripts



Benefits for our personas

ML Engineers

- Combine Python processing units into graphs
- Live test using real, streamed device data
- Enable custom processing on all datasets
- Much improved data collection from device (multi-sensor/modal)
- Visualize the data flow

Embedded Engineers

- Easily test ported C processing across all data
- Combine C processing units into graphs
- Live test using real, streamed device data
- Visualize the data flow

Questions & answers





Hitex offerings ...



Ask alexander.hess@hitex.de – he looks forward to receiving your inquiries regarding Hitex offerings, including:

- Arm encryption libraries
- Development support and services
- Training courses for Arm, functional safety and security
- SO-DIMM compute modules for PSOC™, TRAVEO™ and more for an easy entry into the Infineon MCs.

THANK YOU.
SEE YOU NEXT TIME!

Stay informed: webinars, training sessions, knowledge labs
Find all the information at www.hitex.de