

We put ML into real products

Gartner
COOL
VENDOR
2022



Unlock massive value for your industry with data-driven engineering



**Build real-world
datasets at scale**



**Develop custom ML
solutions fast**



**Deploy intelligent
edge products**



Benefits of edge ML



Innovation

Add new differentiating features, become a market leader by standing out from your competition



Privacy

Data stays on the device, gets processed locally and drives remote alerts, notifications, and actions



Power

Stay operational for longer periods of time



Cost

Save on storage and compute costs by not sending raw data constantly to the cloud



Reliability

Be operational in low connectivity environments



Bandwidth & Latency

Process data real-time on the edge device, without having to wait for a response back from the cloud

How Edge Impulse solves top edge ML challenges

99% of sensor & device data is discarded

Accelerate next gen IoT products and solutions turning data from any edge device into actionable insights

Current ML tools are not designed for edge

Enable developers enterprise-wide to rapidly build ML solutions natively for edge devices, amplifying your ML experts

87% of AI/ML projects fail due to infrastructure complexity

MLOps infrastructure from data collection to edge deployment, for enterprise data science and ML teams, with leading integrations

Difficulties in building smart product experiences

Build innovative experiences with ML with ease, leading to growth and competitive differentiation

Powering the largest edge ecosystem with MLOps

45,000+

Developers

100,000+

Projects

4,000+

Enterprises

TRUSTED BY LEADING ENTERPRISES

ŌURA

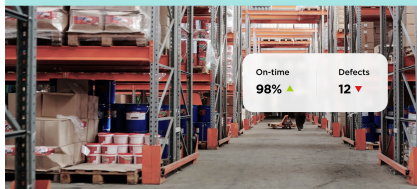
ADVANTECH



SONY

Edge ML Solutions Are a \$250B Market

Logistics



- Asset Tracking
- Supply Chain Optimization
- Worker Safety
- Smart Cameras
- Battery Monitoring

Wearables



- Voice Commands
- Health Prediction
- Activity Detection
- Gesture Recognition
- Acoustic Event Detection

Spaces



- Voice Commands
- Smart Appliance
- Fire Detection
- People Counting
- HVAC Maintenance
- Acoustic Event Detection

Industry



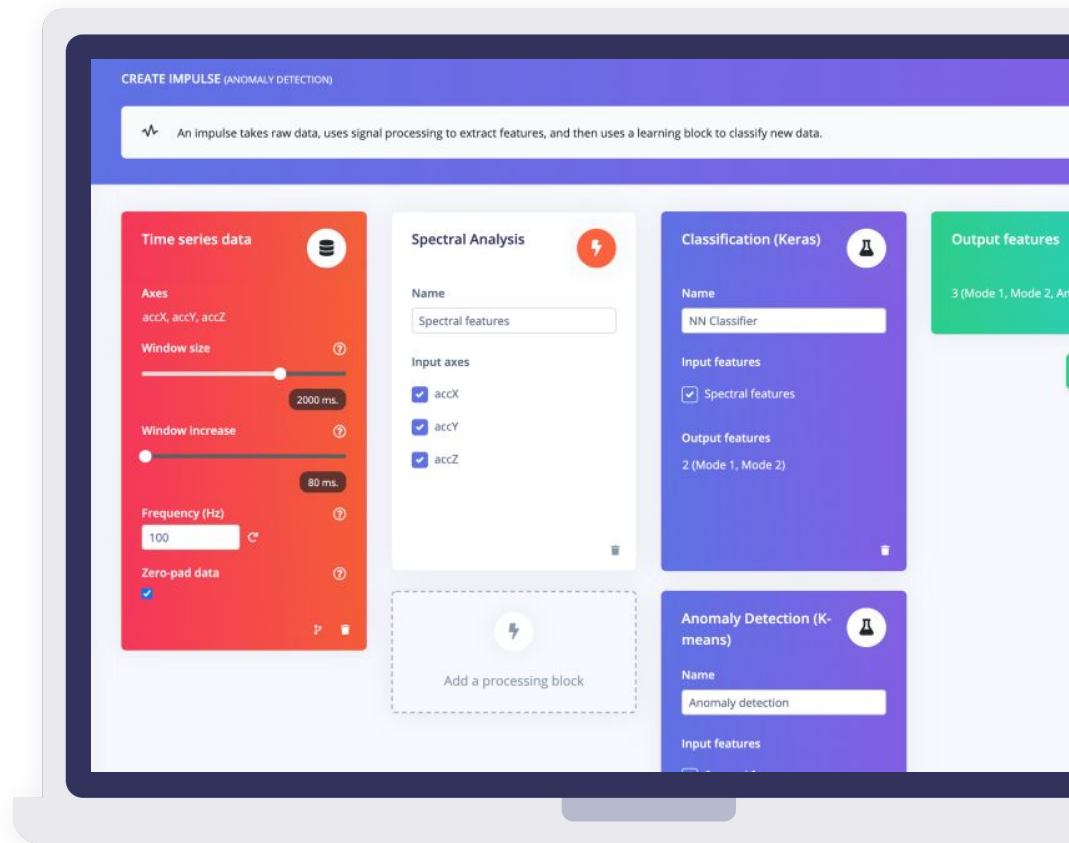
- PDM - Motors
- Power Grid Monitoring
- Worker Safety
- Manufacturing Quality
- Analog Meter Reading
- Smart Robotics

Our Product



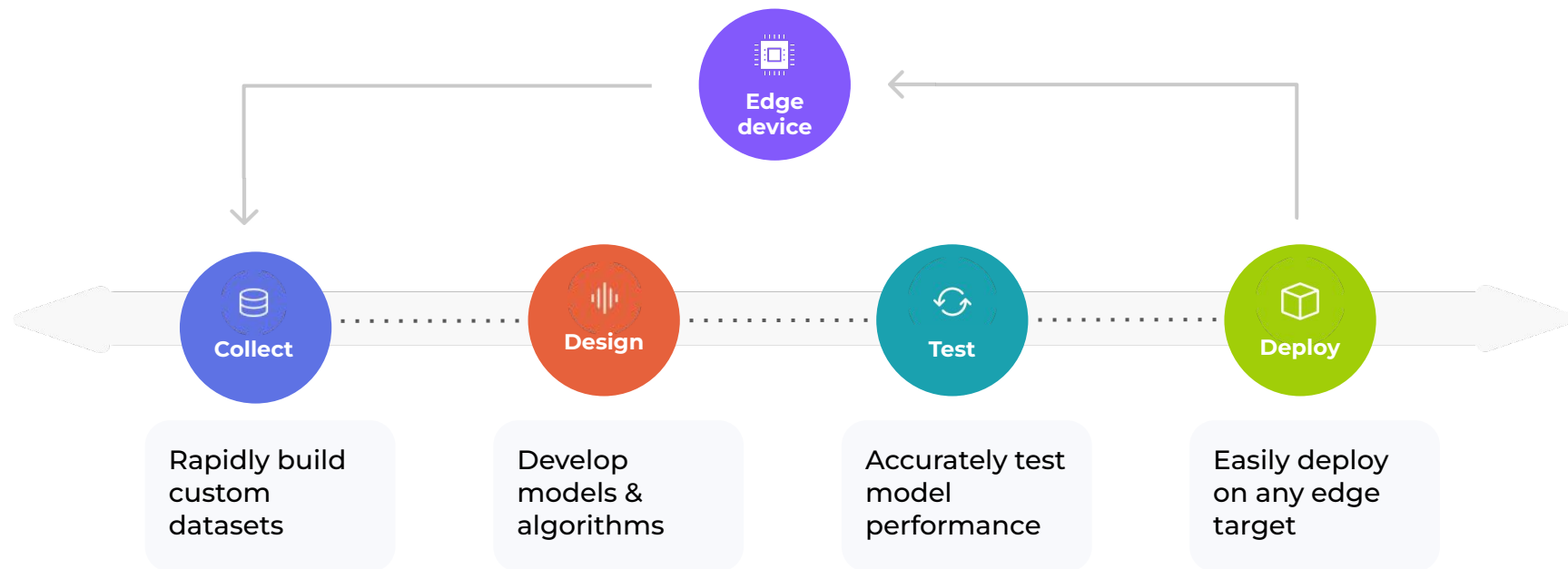
The first fully integrated ML platform

- Royalty-free business model, therefore no impact on BOM cost
- Your IP, stays your IP
- Total explainability, no black boxes



Develop edge ML applications **with Edge Impulse**

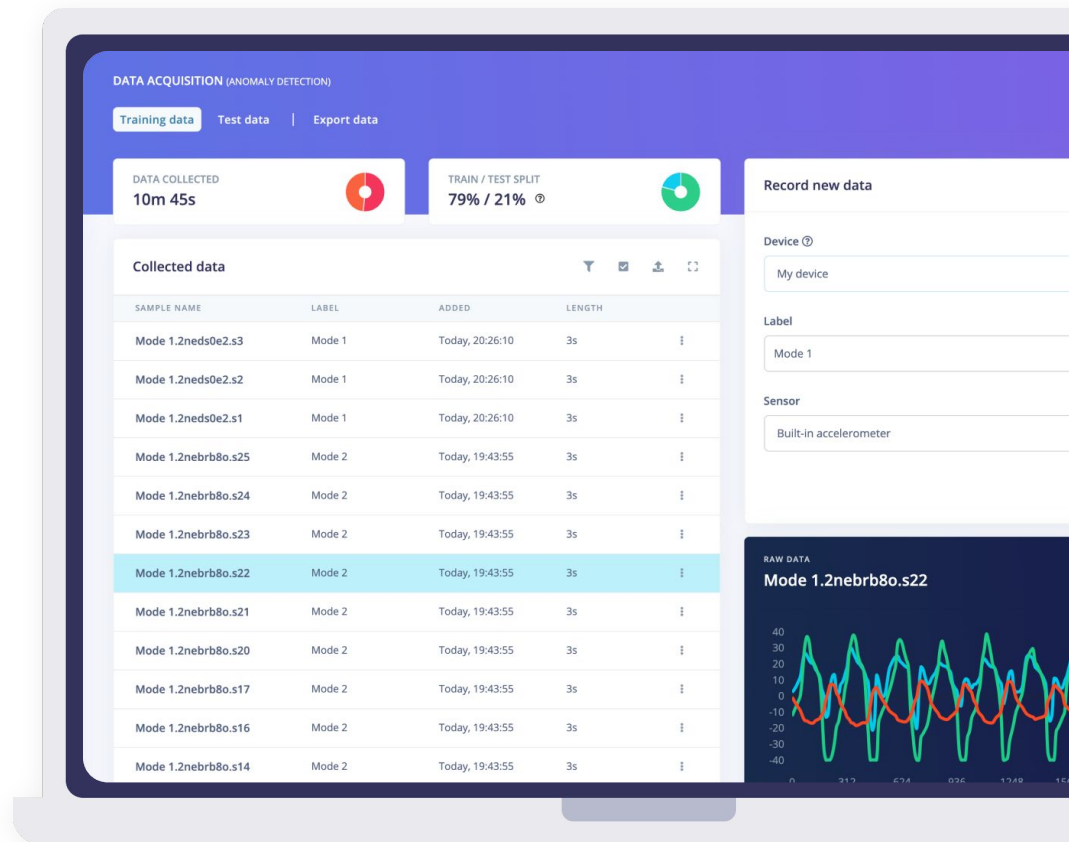
The infrastructure and integrations your data science and ML teams need



Collect

Build valuable datasets at scale

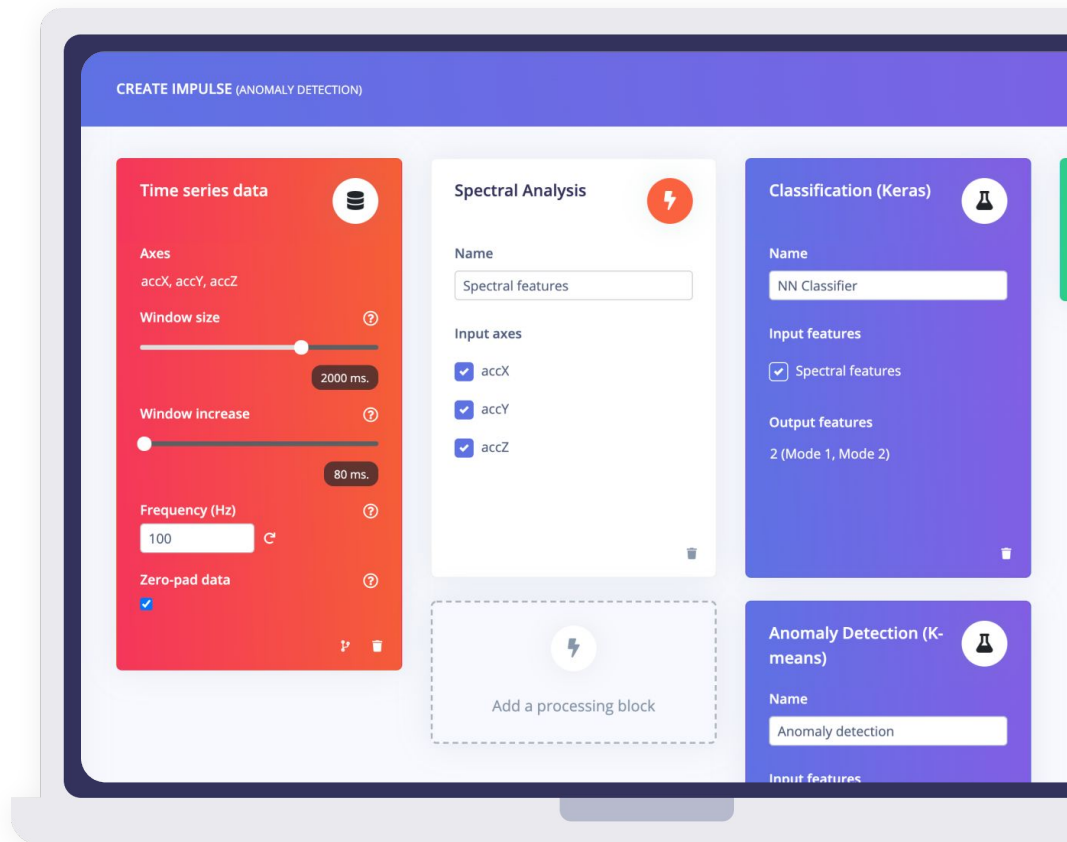
- The infrastructure ML teams need
- Auto-labeling tools
- Integrations with most widely used data science tools
- Strong data traceability and quality control
- Secure data exchange portal



Design

Advanced algorithm and ML expertise

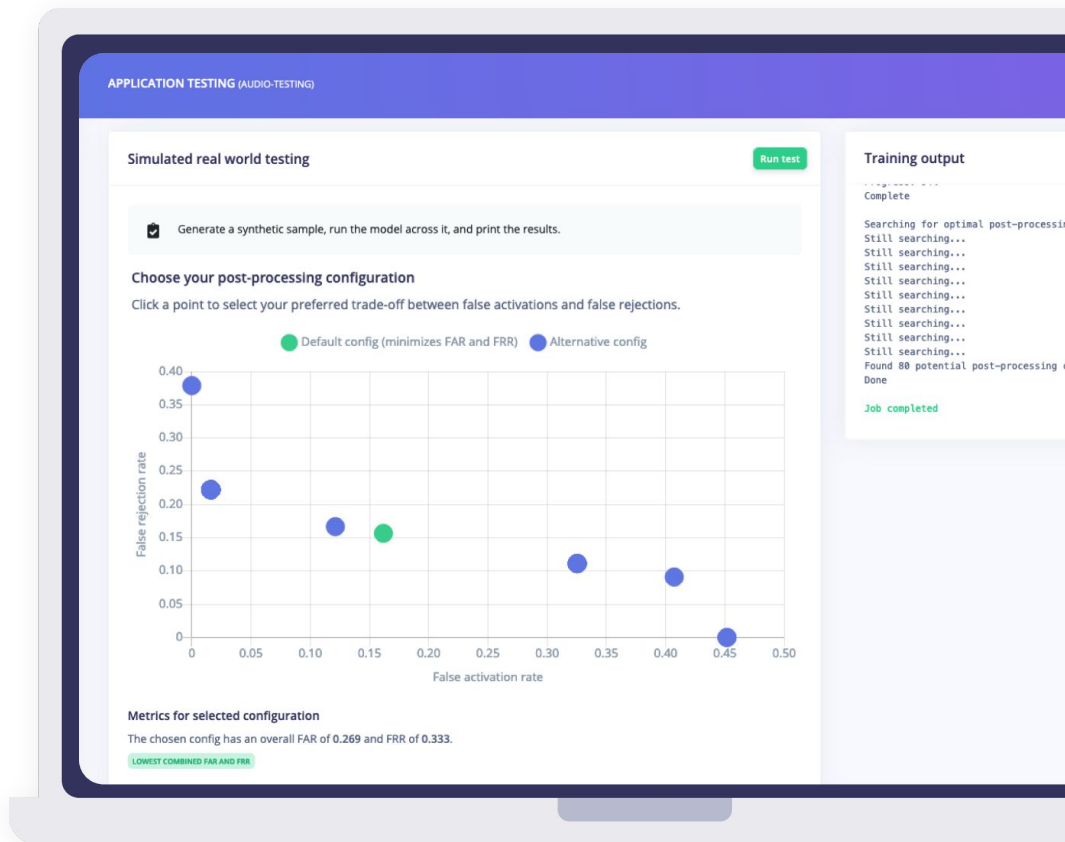
- Advanced algorithm and DSP expertise
- No black boxes
- Explainable AutoML
- Knowledge sharing and collaboration between teams



Test

Go to market faster, with confidence

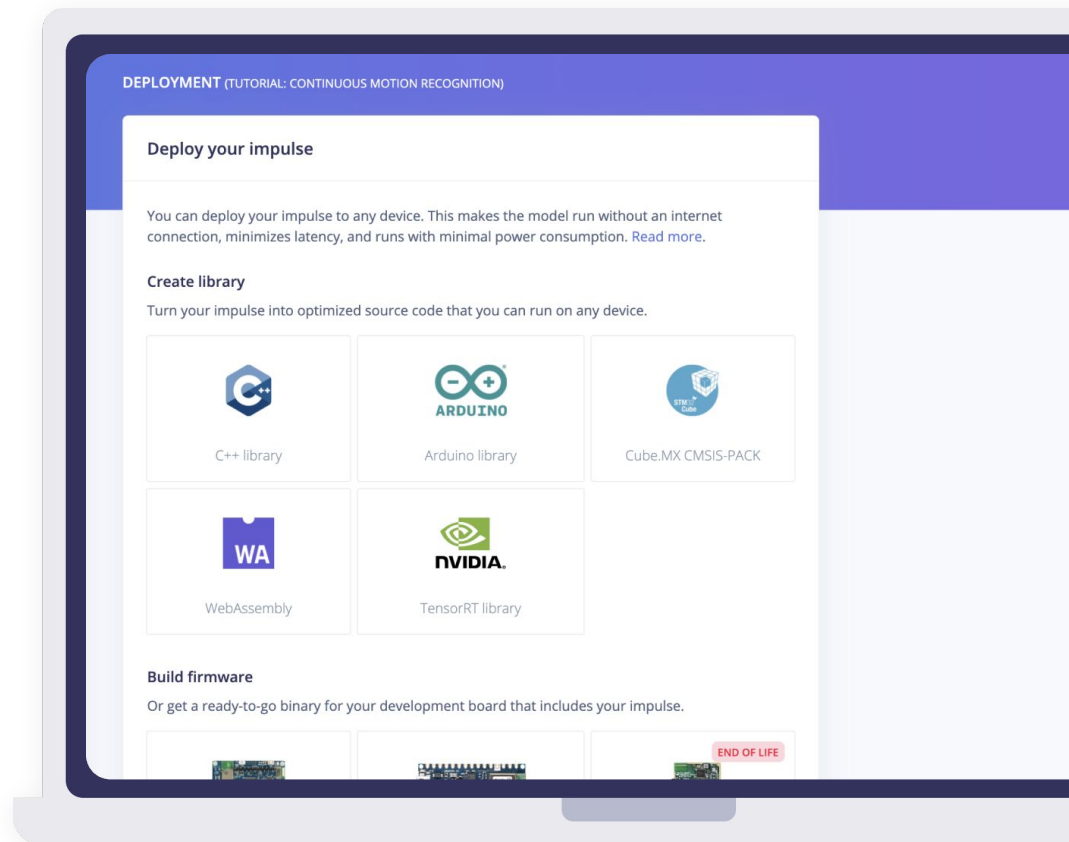
- Hardware-aware development
- Full visibility across the whole ML pipeline
- Test your development against 24hrs of real world data
- Tune the post-processing algorithm to perform optimally



Deploy

Deploy to any edge device with ease

- The largest silicon ecosystem
- Award-winning compiler
- Get access to full source code
- Full firmware integration for a number of devices
- Digital twin for performance profiling and analysis
- Enable brownfield and future greenfield



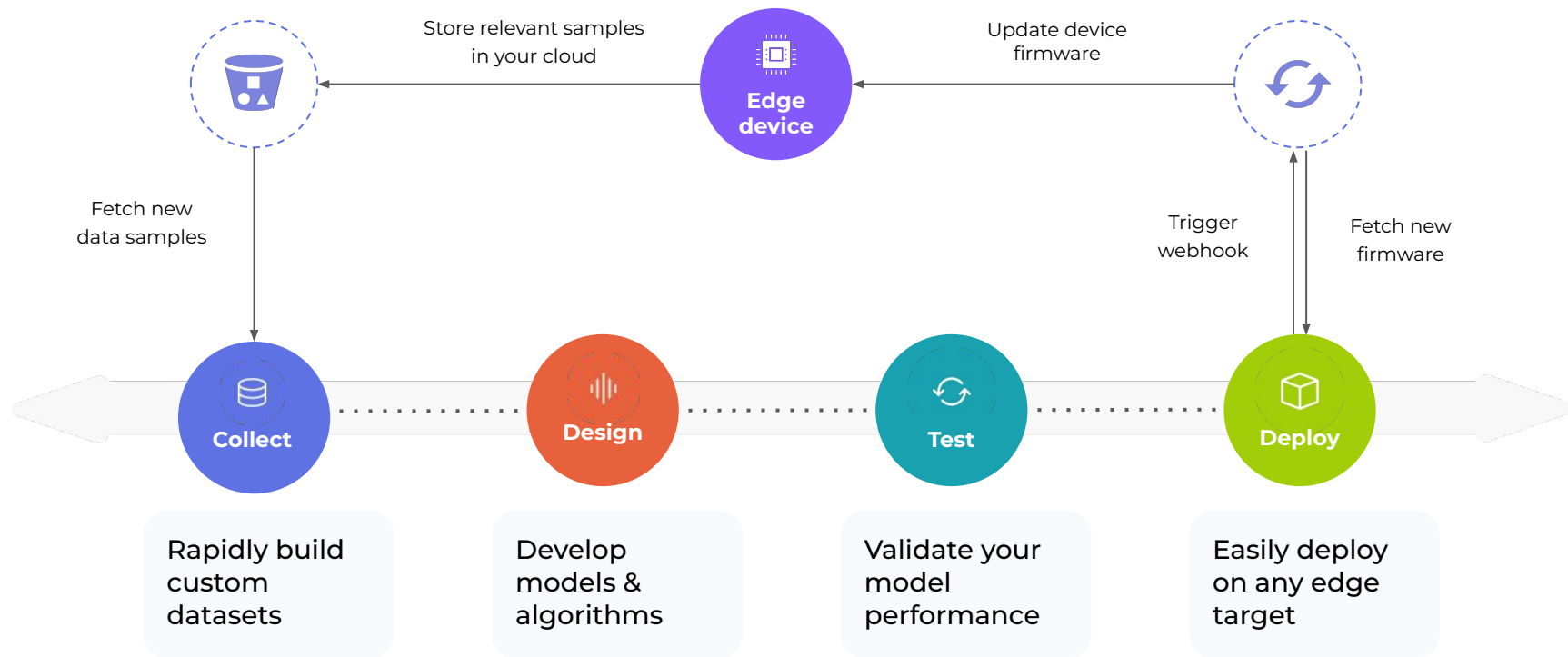
Edge device

Comprehensive hardware support

Benefit from the leading edge ML silicon ecosystem



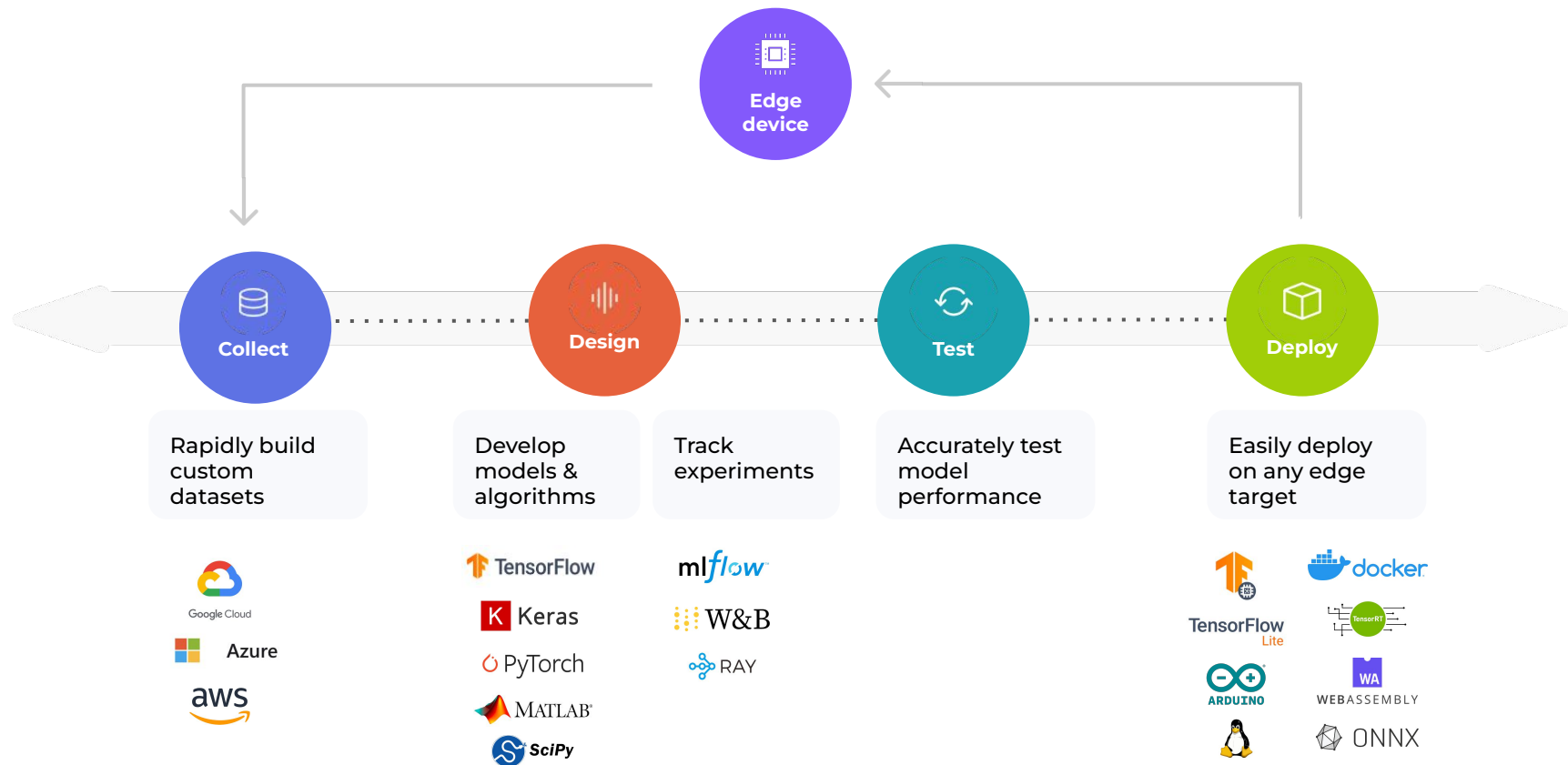
Active learning **with Edge Impulse**



Features

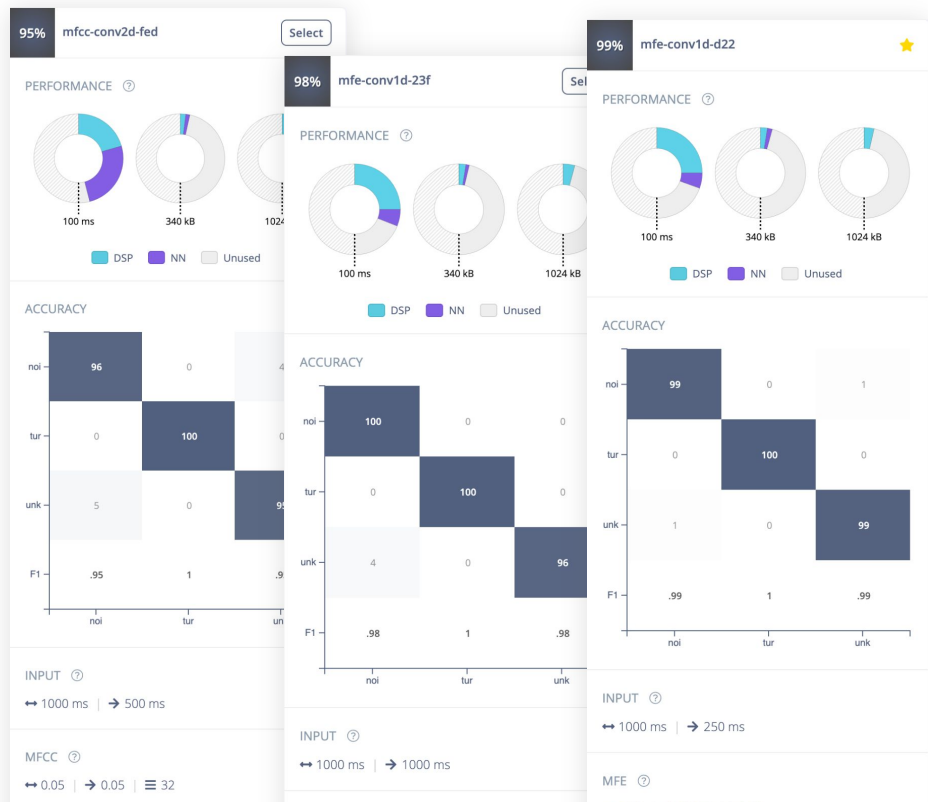


Integrations



Optimal ML solutions with EON Tuner

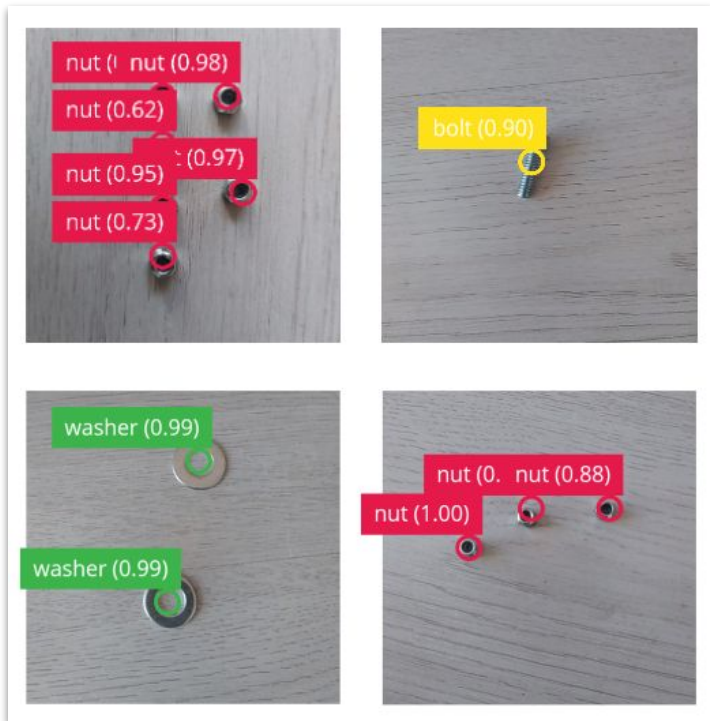
- Make the most of limited and heterogeneous compute
- Find the perfect balance between feature extraction and model architecture
- Recommendations based on real performance metrics
- Built for constrained use cases to high end HW and complex use cases (e.g.: high-end CV)
- Suggestions on optimal hardware target for use case



FOMO: Faster objects, more objects

- **20x average performance improvement**
- Object detection on MCUs
- Ultra fast on embedded Linux
- Better at detecting smaller and more numerous objects
- Capable of segmentation and counting objects

	Cortex-M4	Cortex-M7	Cortex-A	Nvidia
FOMO	2 fps	15-30 fps	60+ fps	150+ fps
SSD	NA	NA	3 fps	20 fps

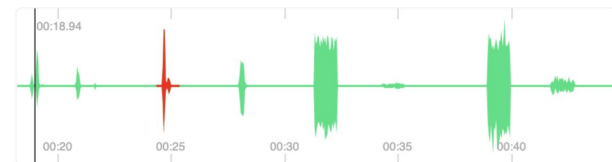


Calibrate your application at scale

- Test on realistic samples: 24 hours of real world audio
- Understand the impact of post-processing while accounting for device constraints and latency
- Choose your ideal balance between false activations and false rejections
- Leverage genetic algorithms to design optimal post-processing configuration

Generated audio

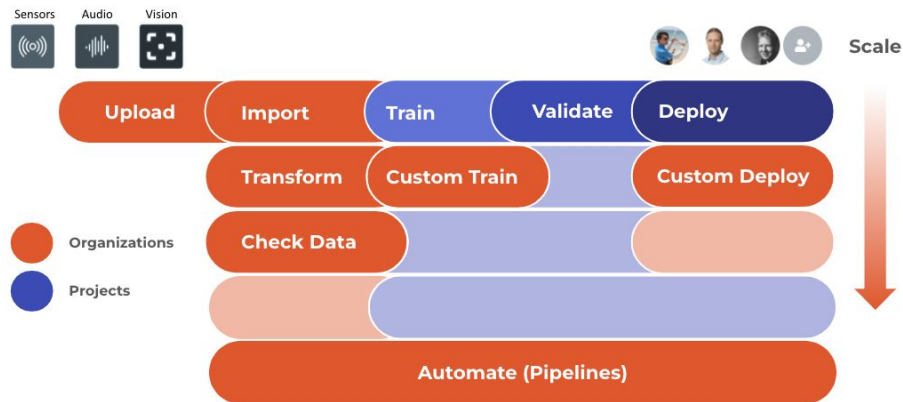
Below you can see and play with the generated audio file, which also shows where false positives and negatives appear in the audio.

[Zoom in](#)[Zoom out](#)

ID	LABEL	START TIME	END TIME	
9	yes => no	13.914	14.914	Play
27	yes => no	60.807	61.807	Play
15	unknown => yes	24.329	25.329	Play

Advanced enterprise infrastructure

- SSO for all of your enterprise's users
- Store, view and manage all of your enterprise's data, projects and users
- Unlock full team collaboration
- Turn raw data into an ML ready dataset
- Build advanced queryable datasets, with easy quality control
- Save time and cost with cloud storage bucket integrations
- Create upload portals to allow 3rd parties to upload data securely



Customers



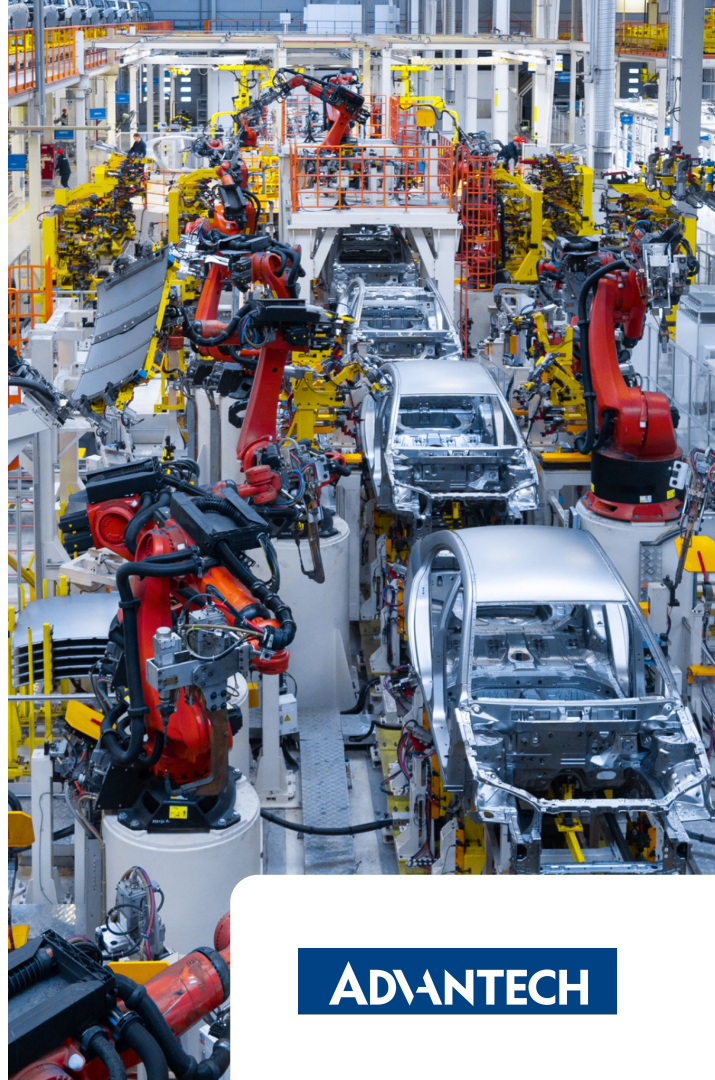
CASE STUDY

Advantech increases manufacturing productivity

Visual inspection system to flag delays on the production line in real-time

Vision

- A reported 15% overall increase in production line efficiency
- Faster detection of idle time raises assembly-line productivity
- Managers free up time to focus on production planning and operations



CASE STUDY

Oura goes deeper on deep sleep

Through the use of Edge Impulse's advanced data infrastructure, Oura rapidly improved their algorithm

Heart

Motion

Temperature

- Unprecedented sleep-scoring accuracy. A 17% point increase in scoring accuracy
- Improved correlation accuracy of 79%
- Data-driven development process enabled Oura's data science team to scale



OURA

CASE STUDY

Nordic and Izoelektro predict power line failure

Smart power grid monitoring that improves the operation, stability, and reliability of electricity distribution.”

Current

Motion

- Automated monitoring of poles and lines
- NB-IoT with 20 year battery life made possible by ML
- Avoid disastrous wildfires and reduce maintenance costs



NORDIC
SEMICONDUCTOR

IZOELEKTRO

USE CASE

Where's my pallet?

Reduce power use on battery operated devices in pallets indoors and outdoors.

Implementation

- Gather vibration / accelerometer data from existing tracking devices in pallets (wood and plastic)
- Label, train model to identify if in a forklift, truck, idle, indoor / outdoor.
- Test in pallets in select service centers



Accelerate your time to market



Faster solution deployments

Create a **production-ready solution** with a dedicated solution engineer on your side as part of an Edge Impulse Solution Package.

Dedicated solution support

- 1 Architect a scalable edge ML solution
- 2 Test and validate application performance
- 3 Deploy production-ready solution
- 4 Continuous testing and model improvement





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