Gaining real-world insights from tiny devices

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By 2025, more than 95% of new industrial IoT deployments will include analytics and AI-edge inference capabilities, up from less than 25% in 2021.

Gartner®, “Emerging Technologies: AI-Enabled IoT”, 21 March 2022, Milly Xiang

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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
Edge ML use cases

Industries
- Wearables
- Spaces
- Industries
- Assets
- Government

Use Cases
- Human health
  - Voice Detection
  - Sound Detection
- Machine health
  - Predictive maintenance
  - Smart Camera
  - Object/People Detection/Tracking/Counting

Silicon

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# How Edge Impulse solves top edge ML challenges

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<tr>
<th>Issue</th>
<th>Solution</th>
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<tr>
<td>99% of sensor &amp; device data is discarded</td>
<td>Accelerate next gen IoT products and solutions turning data from any edge device into actionable insights</td>
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<td>Current ML tools are not designed for edge</td>
<td>Enable developers enterprise-wide to rapidly build ML solutions natively for edge devices, amplifying your ML experts</td>
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<td>87% of AI/ML projects fail due to infrastructure complexity</td>
<td>MLOps infrastructure from data collection to edge deployment, for enterprise data science and ML teams, with leading integrations</td>
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<td>Difficulties in building smart product experiences</td>
<td>Build innovative experiences with ML with ease, leading to growth and competitive differentiation</td>
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The first fully integrated ML platform

Full development lifecycle from data to deployment of industrial algorithms

Total explainability, no black boxes

Royalty-free business model

Deploy anywhere to edge devices, gateways or the cloud
Powering the largest edge ecosystem with MLOps

50,000+ Developers
125,000+ Projects
4,000+ Enterprises

TRUSTED BY LEADING ENTERPRISES

OURA, Lexmark, poly, NASA, SONY, IZOELEKTRO, KNOW LABS, SAIC, NOWATCH, ECOLAB

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Machine health

Predict failures and forecast maintenance cycles with precision

Current  Vibration  Sound  Temperature  Images

Sensing  Maintenance  HVAC  Robotics
Human health

Drive valuable health insights with diagnostic and predictive algorithms

Life Quality  Performance  Safety  Health

NOWATCH  poly  ŌURA  SLATE SAFETY  KNOW LABS
Oura goes deeper on deep sleep

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

- Reached unprecedented sleep-scoring accuracy of 79%
- Close to best-in-class 82-83% only reached by human scorers
- Data-driven development process enabled Oura’s data science team to scale
Non-invasive glucose monitoring
What does it take to build health ML?

Large scale clinical study (1000s of subjects)

Researcher

Wearable device

Reference clinical data

Automated pipeline

Dataset creation

Validate Data

Prepare Data

Aggregate data

Research data store

Model development

Feature extraction

Develop and train

Test and tune

Deploy

Wearable

New Data

Active Learning

Performance monitoring

Edge Impulse
Recap

Reduce energy waste and improve lives!

Focus on generating insights reliably and early

Start thinking about your active learning strategy
Thank you!

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