

Real Time Events Detection

with Acoustics & Machine Learning

SECURAXIS

August 2019 (Intermediary version)



The big picture

We have developed a smart sensor using the combination of **Acoustic Detection** and **Machine Learning** to support the resilience of critical infrastructure in **urban environment** while **reducing their operating costs**.

This project won the **BIC of CERN Technology Award** in November 2018 thanks to its concrete implications in **Smart Cities** and **Smart Highways**.

Critical infrastructure is aging



Vision-based Structural Health Monitoring (SHM) is not adapted to the needs of infrastructure management authorities and companies anymore.

Bridges are aging. The road users' confidence index is down sharply.

Dams and **wind farms** are aging. The confidence index of people living nearby is dropping sharply.

Unfortunately, when a **serious structural breakdown** occurs, the **impact is enormous** in terms of costs and sometimes in terms of **human lives**.

"Structural breakdown never happens for no reason, there are always warning signs." Road Civil Engineer - Switzerland

Biodiversity monitoring is the future

Companies and organizations want to measure the impact of developments, infrastructures or public strategies on urban biodiversity and on the health of the ecosystem.

We have developed an automated measurement tool for biodiversity. This solution is based on the use of sound sensor networks and biodiversity indicators based on real-time analysis of species populations in the observed territory.

Its use makes it possible to measure the effect on urban biodiversity of facilities, infrastructures, public facilities, etc.

1 technology - 3 fields of application



Structural Health Monitoring

- Bridges and dams
- Buildings and stadiums
- Large machines and wind turbines



City and mobility

- Vehicle categorization
- Noise measuring
- Traffic counting



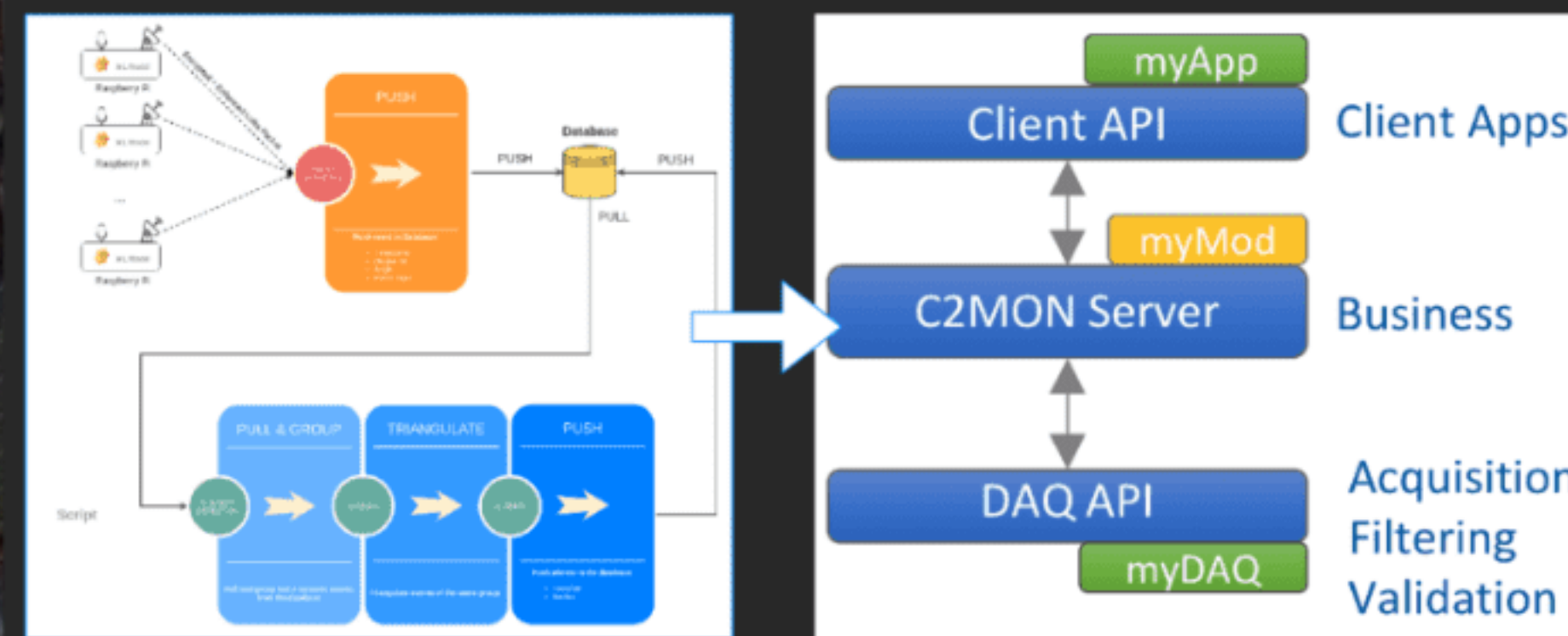
Biodiversity monitoring

- Wildlife detection
- Endangered species protection
- Human activity effects measurement

Competitive Advantage

Our team has sound expertise in Machine Learning, Acoustics and Data Management

Our unfair advantage is exclusive access to CERN's superior data acquisition and processing technology called C2MON*

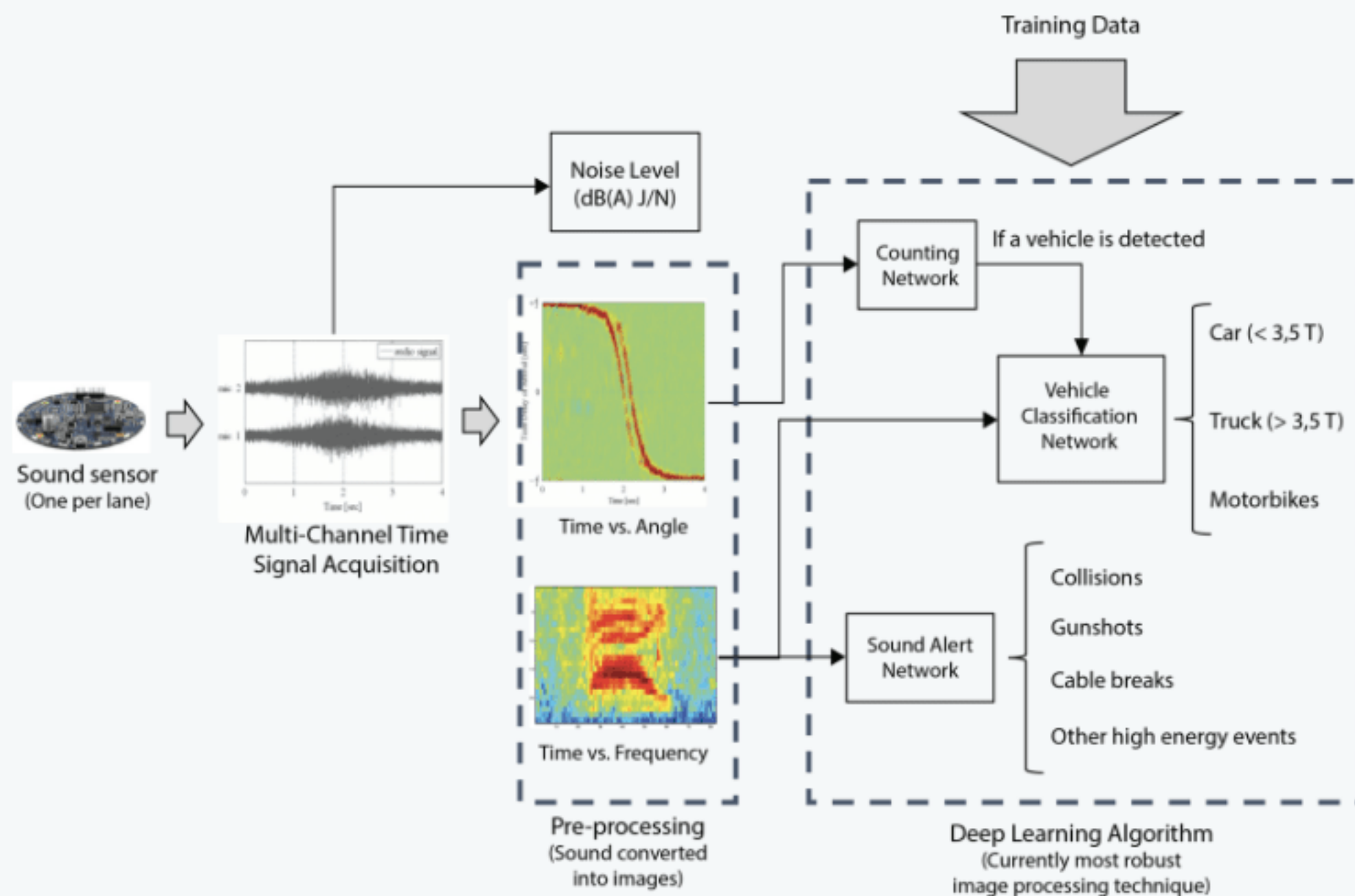


Securaxis and CERN Technologies partner for scalable IoT applications

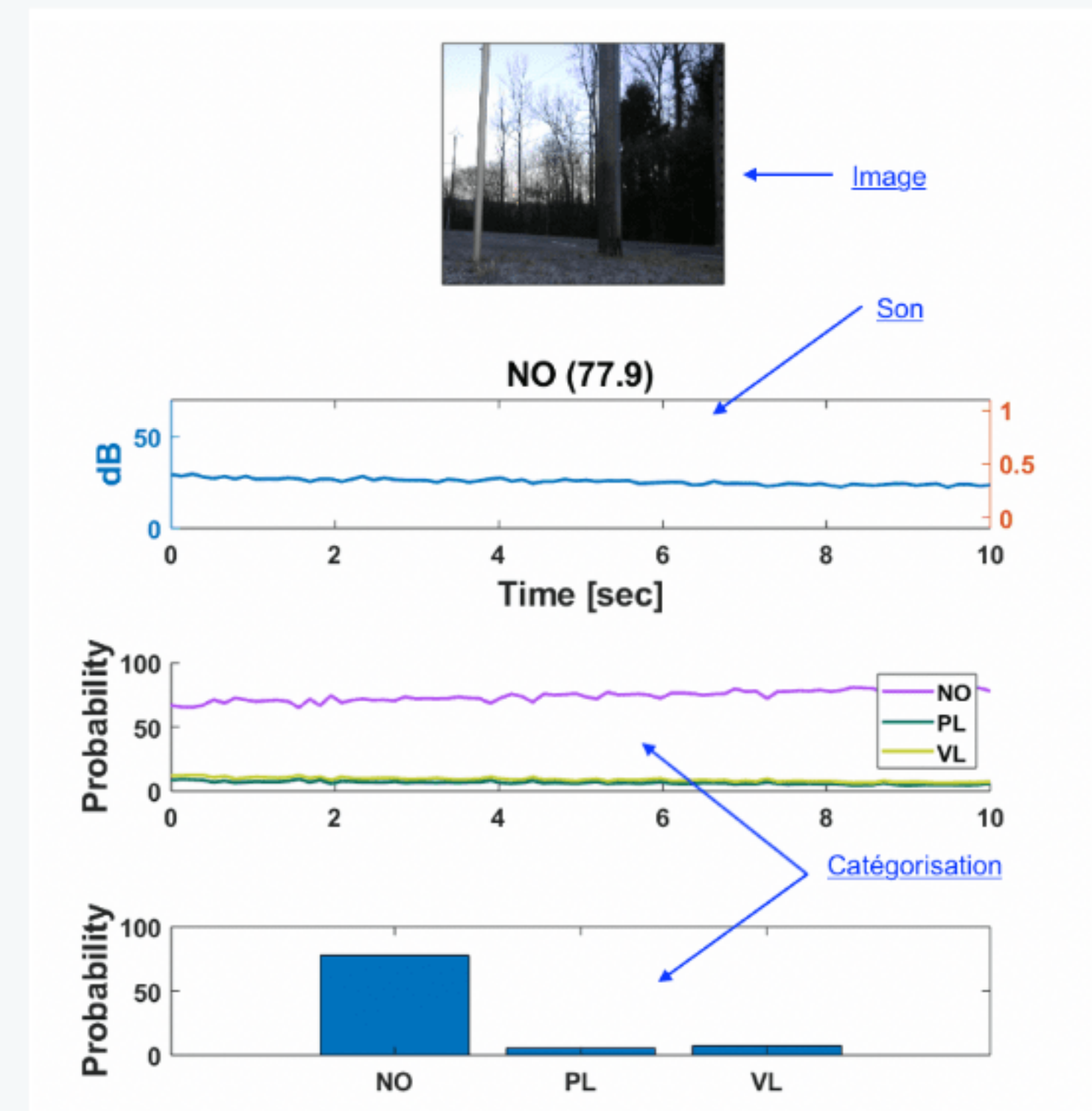
**A modular Java framework developed by CERN for building highly available, large industrial monitoring and control solutions.*

Technology

Based on latest EPFL Acoustic Signal Processing researches



AI Algorithm



Example: Vehicle categorization

Why Securaxis ?



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- First to develop a multiple purpose acoustic sensor
 - Strong expertise in acoustic monitoring and Machine learning



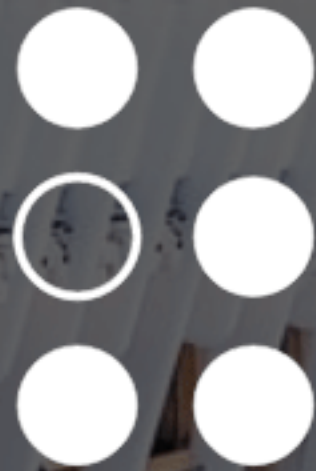
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- Partnership with the CERN
 - Pay per amount of risk mitigated / per surface covered
 - Patent in preparation



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- Excellent timing due to growing needs of infrastructure permanent monitoring
 - Large market : Smart Cities, Insurance Companies, Civil Engineering companies

Go-to Market Plan

Customer Acquisition Channels



Events

- GITEX 2019 (Dubai)
- Smart City Expo World Congress 2019 (Barcelona)
- Automa Oil&Gas 2019 (Zurich)



Partnerships

- CERN
- CMNG Capital (Hong Kong)
- Ingérop (France)

Team



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COO



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Yoann Meynet
Dev lead - Machine Learning



Dmitri Filippov
Full stack



Julien Ricard
Acoustics & Data science



Valentin Sagot
Product development

Board



Stassi Anastassov

Former President/CEO of Global Duracell, Stassi Anastassov is a Senior Advisor at CDH Investments (China).



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