



HACARUS

Lightweight AI for Production

NRW Japan K.K. Fireplace WebTalk
29 Oct. 2020

COMPANY AND TEAM



Kenshin Fujiwara CEO
Takashi Sameda CTO
Naoki Kitara CDO
Yasuhiro Imamura CFO
Adrian Sossna VP of Global Sales



LATEST ROUND: Series B

(Lead: Osaka Gas (B), Kyoto University (A))

FOUNDED: 2014

EMPLOYEES: 67

LOCATIONS: Kyoto (HQ), Tokyo, Kobe, Manila

CUSTOMER SUPPORT IN: Japanese, English, Chinese, German and Swedish

INVESTORS

FINANCIAL INSTITUTION(S)



MEDICAL



INDUSTRY



UNIVERSITY VC



AI PRODUCTS & SERVICES



AI
Academy



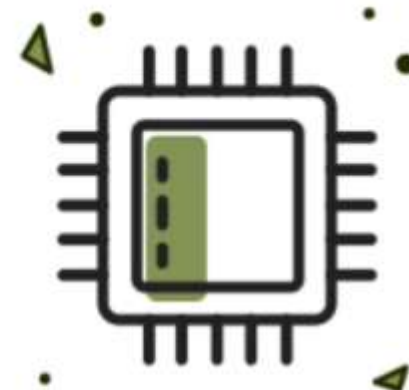
Data Science
Consulting



SPECTRO
Inspection AI



SALUS
Medical AI



COLIGO
Edge AI

VALUE PROPOSITION



We Provide:

EXPLAINABLE AI



That is:

ENERGY & RESOURCE EFFICIENT



Compatible with:

SMALL DATA SETS (FRUGAL)



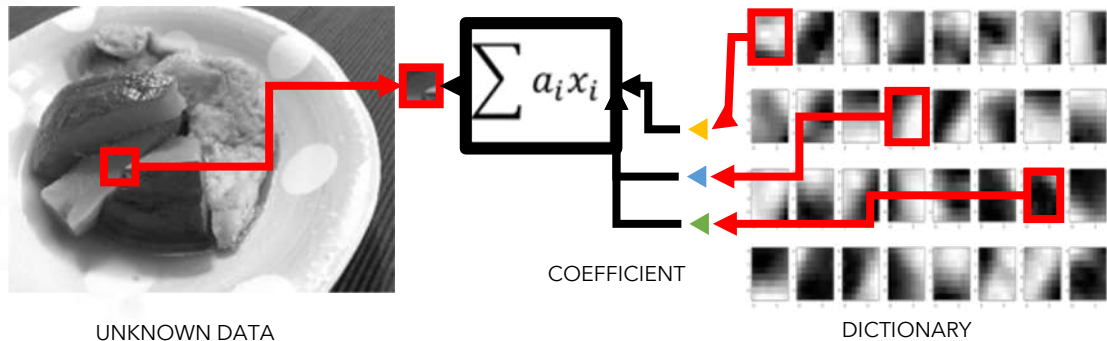
And gives:

MODEL TRANSPARENCY

SPECIALISTS IN: TIME SERIES & IMAGE DATA

CORE TECHNOLOGY

SPARSE MODELING



Kentaro Ohki



Masayuki Ohzeki



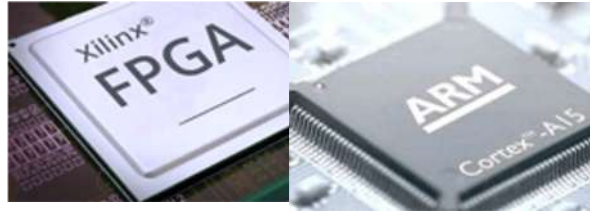
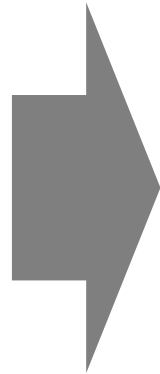
Kaoru Kawamoto

JAPANESE PATENT PENDING NO. 2019-087869

Solution overview



HACARUS:
Sparse Modeling
based AI



FPGA / ARM



Box PC



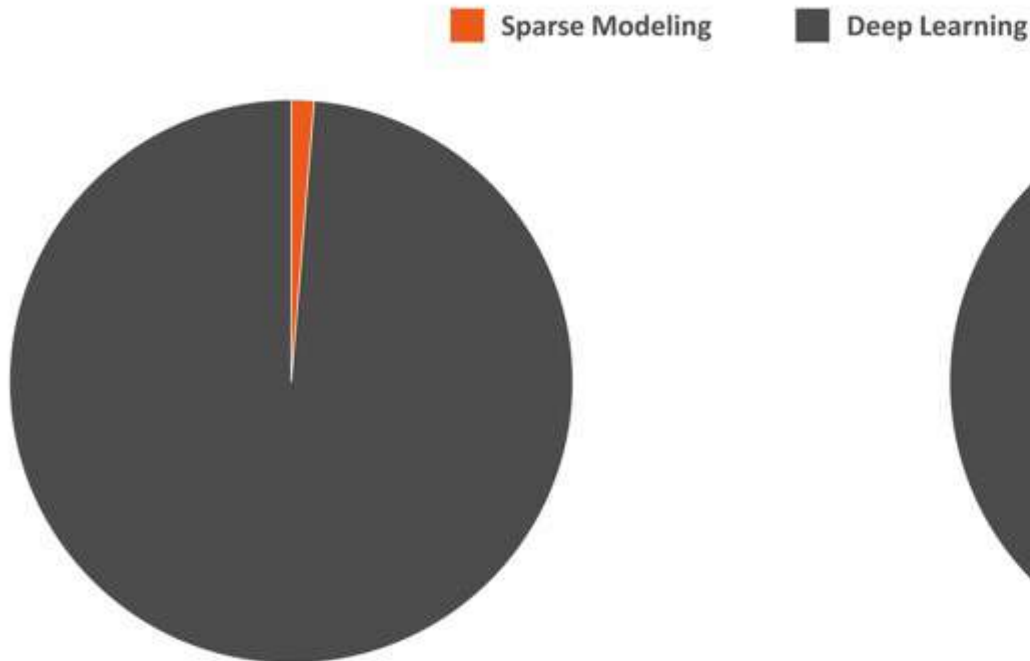
Cloud

Medical
**Manufacturing
Industry**



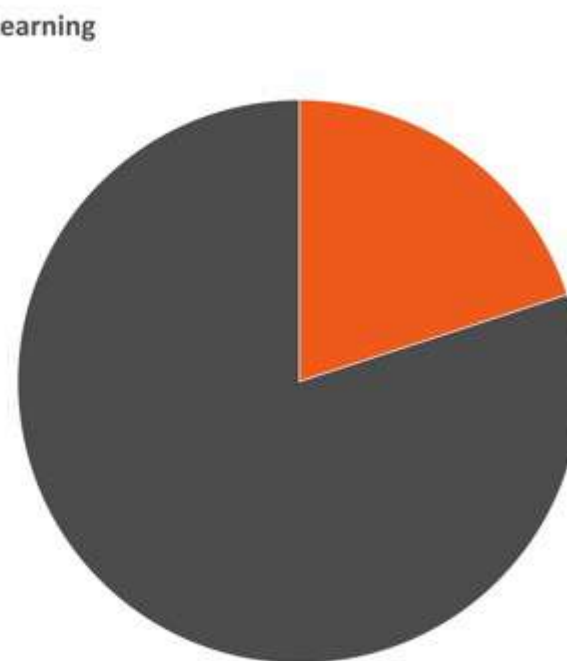
Our AI Technology in comparison

Energy Consumption



Sparse Modeling
uses 98,7 % less energy

Training Time



4 times faster learning
with Sparse Modeling

Tests show that Sparse Modeling consumes only 1% of the energy of a conventional Deep Learning platform with the same accuracy and significantly less training time. It is therefore the perfect AI technology for embedded systems

Image: Congatec

Case study: Plasterboard surface inspection

Customer: Japanese producer of construction material

Use case: Secondary inspection of surface detection of ceiling tiles.

Customer goal: Find defects missed by existing inspection system.

Customer benefit: Higher quality of products shipped to customers

Technical details

- Product: SPECTRO - Visual Inspection
- Image size: 1600x1200px
- Training images: 200 (good samples)
- Environment: Congatec Industrial PC
- Board: conga-QA5 (Intel® Atom™ Quad Core on Qseven)
- Training time: ~2min
- Prediction time: ~300ms per image
- Accuracy: 99%



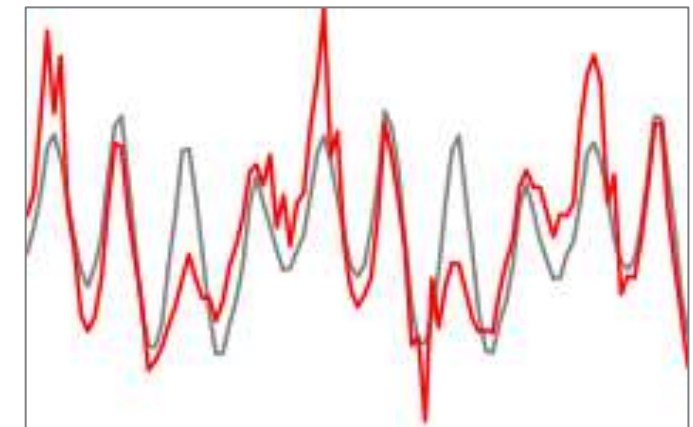
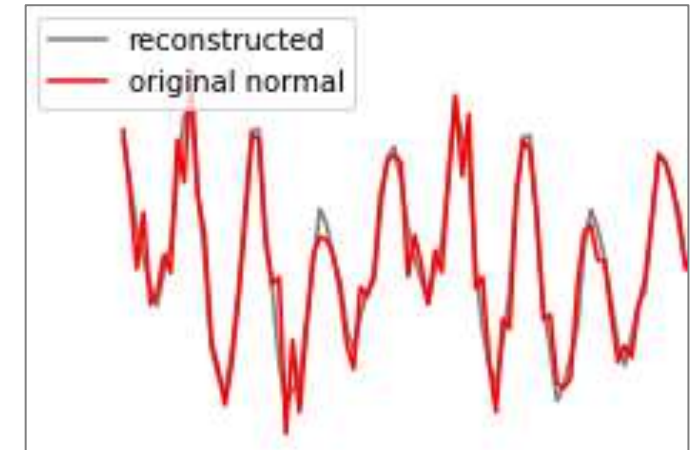
Case study: Component health detection from vibration sensor data

Customer: Global technology distributor

Use case: Sensor data analysis running on an IOT gateway

Technical details:

- Product: SPECTRO CORE - IOT Anomaly Detection
- Environment: Dual Core ARM Cortex-A9
- RAM: 3GB
- Training data: ~80min of sensor data (48Hz → ~230k samples)
- Training time: ~14s
- Inference time: ~950 μ s per 512 sample-segment



Detected anomaly

More Industrial Case Studies...



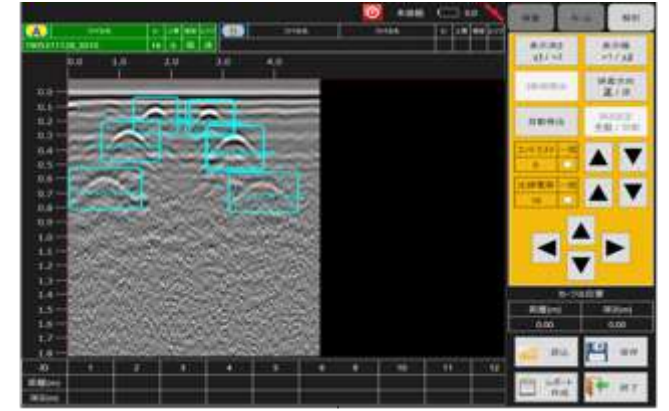
UNSAFE BEHAVIOR DETECTION



WATER / DIRT / OBJECT DETECTION



RADAR / SONAR IMAGE ANALYSIS



Invision Top Innovation Award 2020

HACARUS received an award in the international machine vision magazine "inVISION" for our Sparse Modeling technology and application achievements.



<https://www.invision-news.com/top-innovations/>



→ Visit our SPECTRO presentation at the Congatec booth at Japan IT Week Autumn 2020

RECENT ANNOUNCEMENTS



**HACARUS Raises Series B Round Lead
by Osaka Gas**



京都大学
KYOTO UNIVERSITY

**HACARUS and Kyoto University Join Forces to Tackle
Cervical Cancer**



TOP 100 AI
2020

**CB Insights named HACARUS
a Top 100 AI Company 2020**



**DB Mindbox selects HACARUS for
ConTech: The Next Generation 2020**

TRACTION

CUSTOMERS



TECHNOLOGY PARTNERS



FEATURED IN / AWARDED BY



NEXT STOP GERMANY?

We are actively seeking opportunities in Germany / Europe with the goal to extend our business outside Japan.



Thanks to NRW.INVEST / NRW JAPAN K.K. for the support.

ありがとうございます



Please visit us at hacarus.com



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