

The background of the slide is a large, stylized eye. The iris is composed of concentric, glowing blue and white rings, resembling a mechanical or digital structure. The sclera is a deep blue, and the eyelashes are depicted as fine, glowing blue fibers. The overall aesthetic is futuristic and high-tech.

Artificial Intelligence for Industries

byteLAKE
Products and Services

**byte
LAKE**

Artificial Intelligence for Industries

Products



CFD Suite
Fluid Dynamics Acceleration



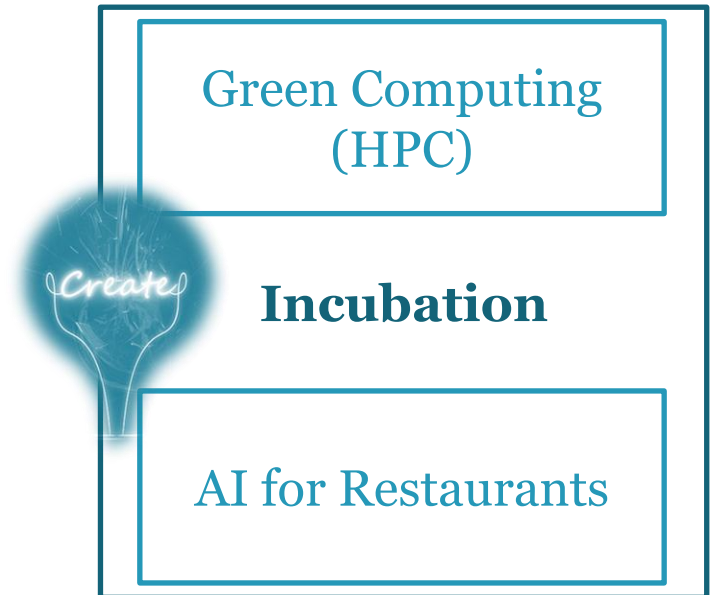
Ewa Guard
Large Areas Visual Analytics



Brainello
AI OCR for invoices, no templates
(Document Processing)



Cognitive Services
Visual Inspection, Big Data
(Industry 4.0)



Services



Edge AI



Cognitive Automation

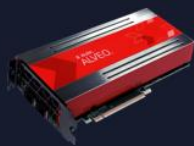


HPC

Collaboration

CFD KERNELS ACCELERATION

XILINX
ALVEO™



byte
LAKE

- Faster time to results and more efficient processing compared to CPU-only nodes
- **4x** faster
- **80%** lower energy consumption
- **6x** better performance per Watt

"byteLAKE saw the potential to make CFD analysis even faster and more easily accessible leveraging the flexibility and superior parallelism of Alveo accelerator cards," said Viraj Paropkari, senior manager, Data Center Marketing, Xilinx. "Our teams worked together to create finely tuned kernels for Alveo accelerators that are ready to deploy on-premise or in the cloud."

Partnership in: Artificial Intelligence & High Performance Computing (HPC)

Lenovo

byte
LAKE

*By combining a diverse set of data science expertise with deep industry knowledge of industry segments including healthcare, life science, energy and manufacturing, we're able to provide solutions that meet customers where they are. Our (Lenovo's) **collaboration with partners such as Intel, NVIDIA, Mark III systems, and byteLAKE greatly expands the resources and expertise we're able to provide**", said Dr. Bhushan Desam, Lenovo's AI Global Business Leader, HPC and AI Business.*

More at:
bytelake.com



Europe's leading supercomputing specialists.
Extensive experience in the development and installation of high-performance computing (HPC) systems.

byte
LAKE

Huge experience in porting, developing and optimizing software applications for innovative, massively parallel supercomputing platforms.

Together we offer a complete solution:

- HPC system design, build-up and configuration
- HPC software applications development and optimization to make the most of the hardware

byteLAKE strengthens its offering in the areas of Computer Vision software solutions and partners with Basler – a global provider of industrial cameras

The partnership ensures that customers of Basler's cameras will profit from the custom vision software services they need to quickly develop new products. The combination of Basler's hardware with byteLAKE's software services will ease the overall product design and development process.

*"Automation and optimization of various business processes are crucial and very high on our agenda when planning future roadmap for Bpower2. We see Artificial Intelligence as the key enabler to achieve such goals. **Being impressed by byteLAKE's achievements and innovativeness in the AI space**, we are very happy to welcome them as our partners who will design and deliver AI-based microservices for Bpower2," said Jacek Rakoczy, Bpower2's CEO.*

byte
LAKE

NVIDIA
INCEPTION PROGRAM

Microsoft
Partner

SILICA

BASLER

Bpower2

Cognitive Automation

Complete Solutions Hardware + Software

- **Complex or repetitive tasks automation**
(extracting information from documents, scans, e-mails etc.)
- **Industry 4.0 automation**
(intelligent cameras for visual inspections, sensors data analytics etc.)
- **Enabling data-driven, proactive operations**
(finding answers hidden in the data like why something happened? What will likely happen? What are the trends?)

*Custom made solutions
with the ability to self-improve over time*



AI on Edge: limitless possibilities

Bringing
Artificial
Intelligence
to the Edge

▶ Near-
real-time
AI experience

Reduced
bandwidth
needs

Scalability
for IoT

- highly optimized AI engines to analyze text, image, video, sound and time-series data
- on-device, local AI inferencing

- **Algorithms optimization**

- making the most of hardware components
- optimal usage of precious resources
- faster results at the lowest possible energy consumption

- **Detecting shapes & patterns**

- **Advanced data analytics**

- Solutions for IoT/ edge, Cloud and on-premise configurations

HPC at byteLAKE

Accelerating time to results and adapting complex algorithms to GPU, FPGA, many-CPU architectures.

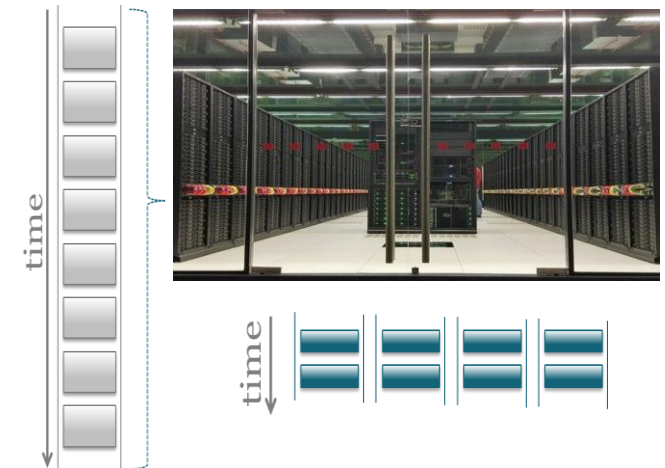
Making the most of the hardware:

- **Speedup:** accelerating time to results for complex algorithms
- **Green Computing:** optimizing algorithms to reduce energy consumption
- **Scalability:** from single nodes to clusters

Unleashing the power:

- selecting the right programming model to a given problem (task parallelism, data parallelism, mixture of these two)
- providing the right balance between CPUs and GPUs/FPGAs
- optimizing data transfers between host memory and accelerators
- code adaptation to a variety of computing platforms

Bottom line: lowering TCO thru various optimizations
(performance, energy efficiency, accuracy of calculations)





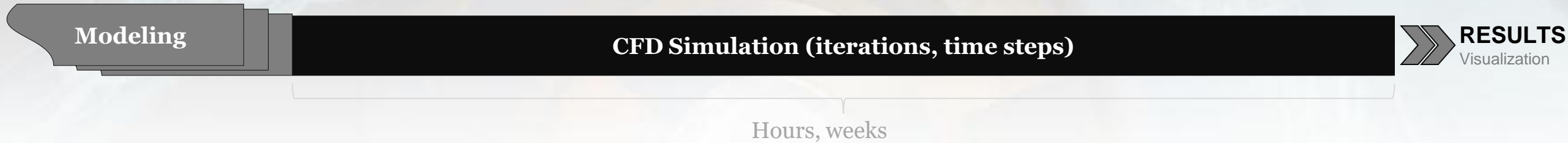
Products



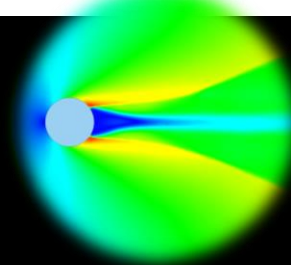
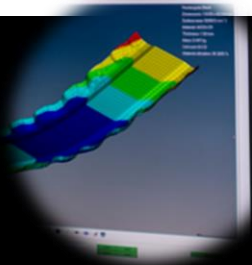
AI-accelerated CFD Simulations

General concept of the acceleration

- **Traditional workflow**



- **CFD Suite**

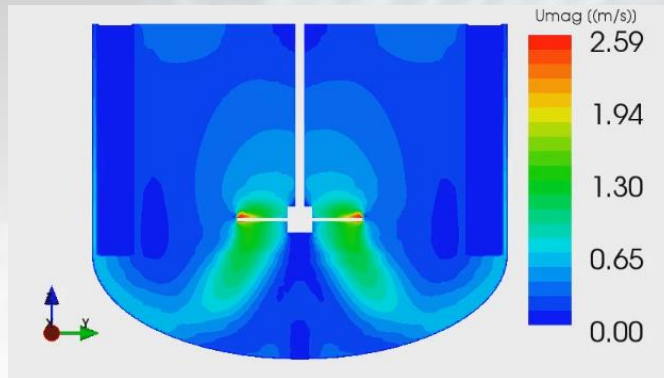


CFD Suite

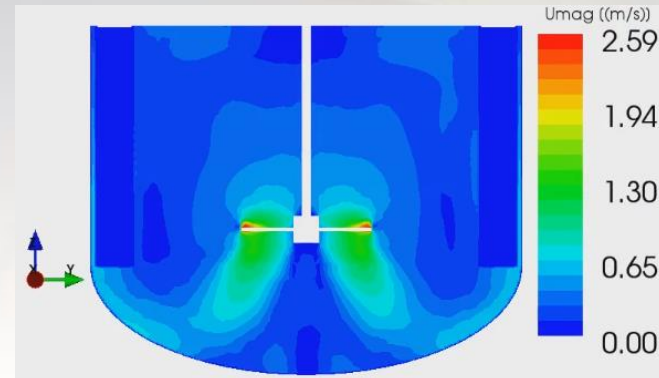
Collection of innovative AI Models
for computational fluid dynamics.
byteLAKE.com/en/CFDSuite

Chemicals mixing, more results

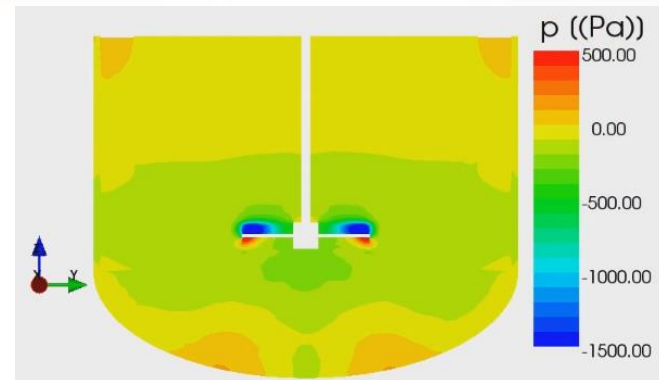
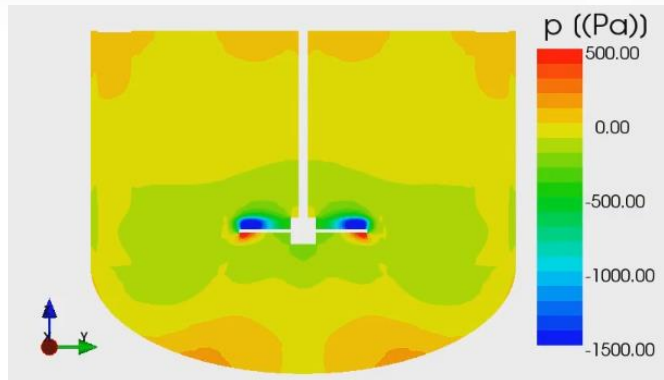
CFD



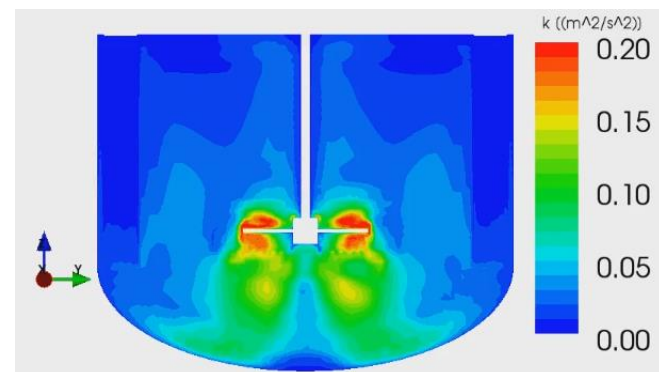
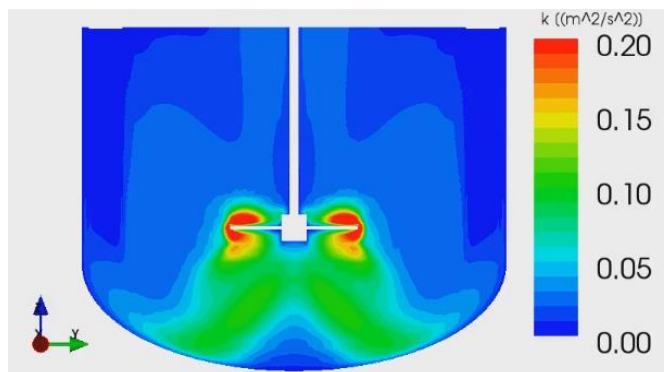
CFD Suite (AI)



X-Plane Velocity



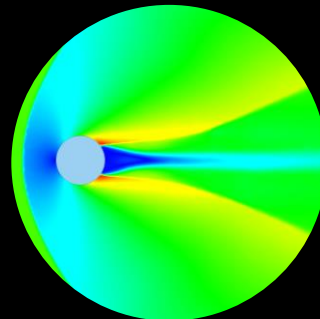
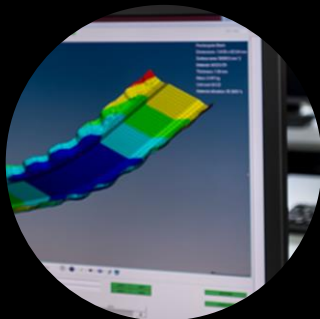
X-Plane Pressure



X-Plane Turbulent kinetic energy

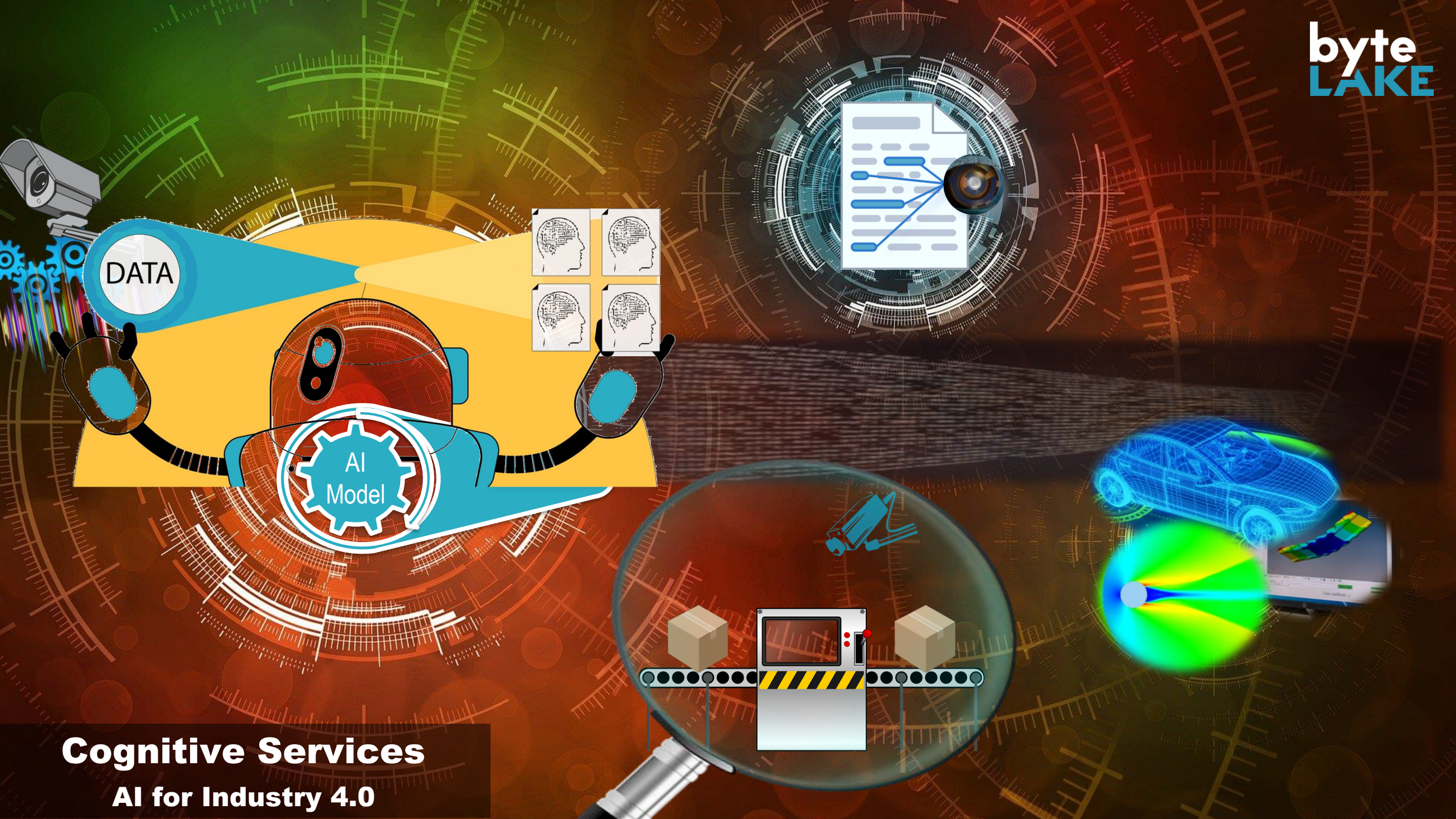
byte
LAKE

AI for CFD



CFD Suite

Collection of innovative AI Models
for computational fluid dynamics.
byteLAKE.com/en/CFDSuite



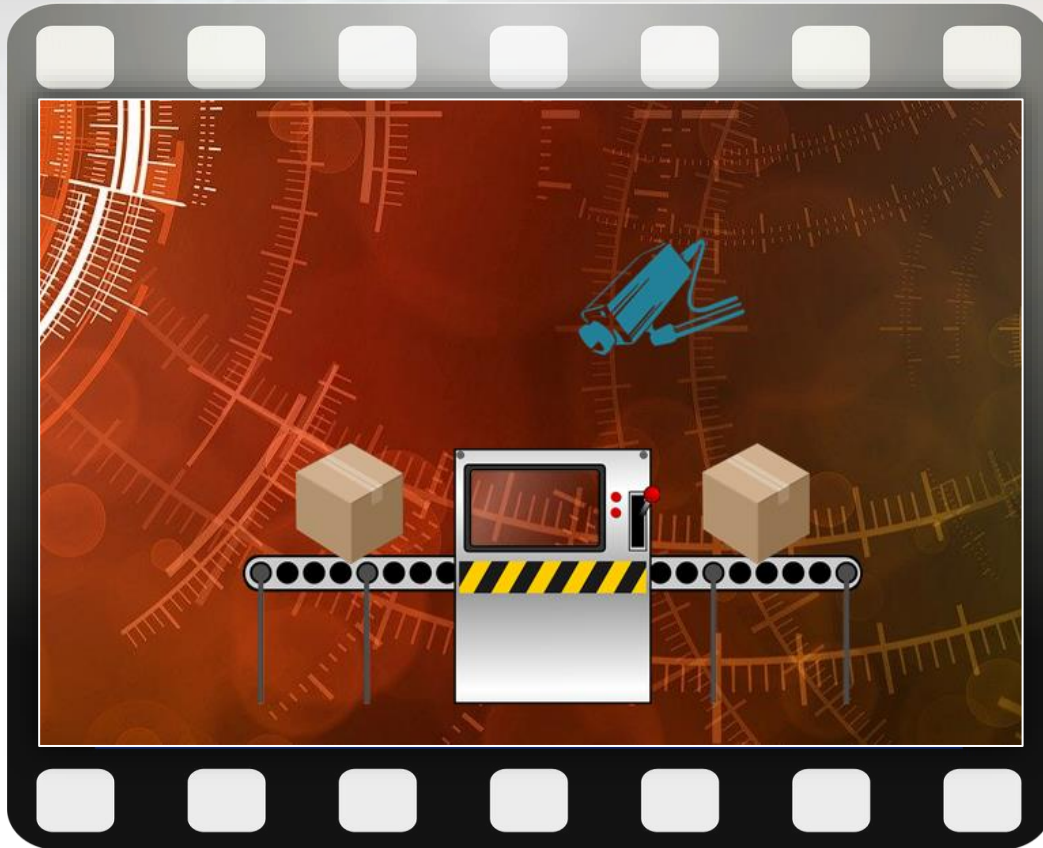
Cognitive Services

AI for Industry 4.0

AI-assisted Visual Inspection

Features

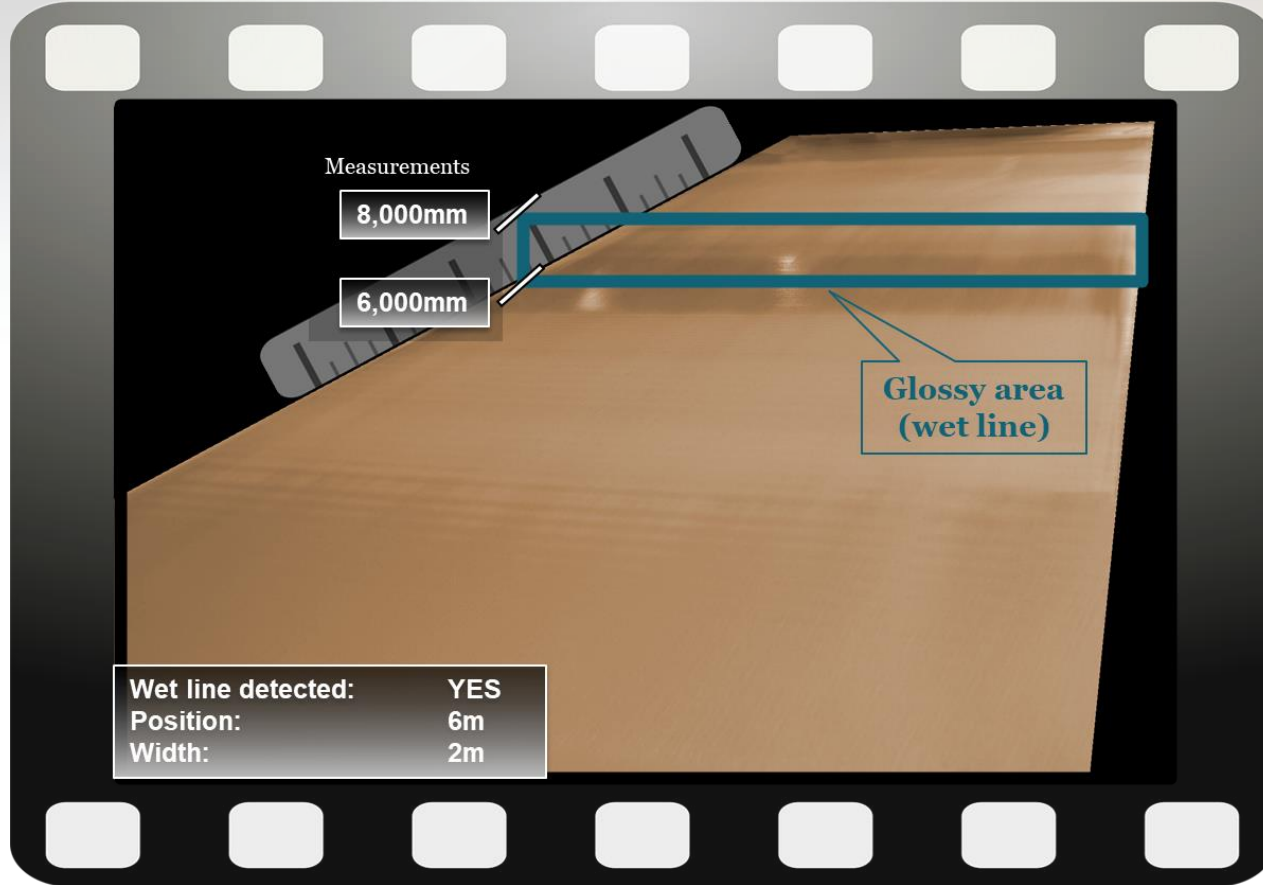
Intelligent Cameras



- **Quality monitoring automation**
(visual inspection of products and processes, environment analytics, detecting dangerous situations, events and behaviors etc.)
- **Counting objects**
(objects recognition and quantification i.e. on conveyor belts, elements in objects etc.)
- **Objects recognition**
(camera's input analysis and i.e. food type recognition, parts types in manufacturing etc.)
- **3D data analytics**
(robotic arms movement automation with 3D cameras, routing/self driving robots etc.)

Paper Mill 4.0

byteLAKE as single source for all components of the solution

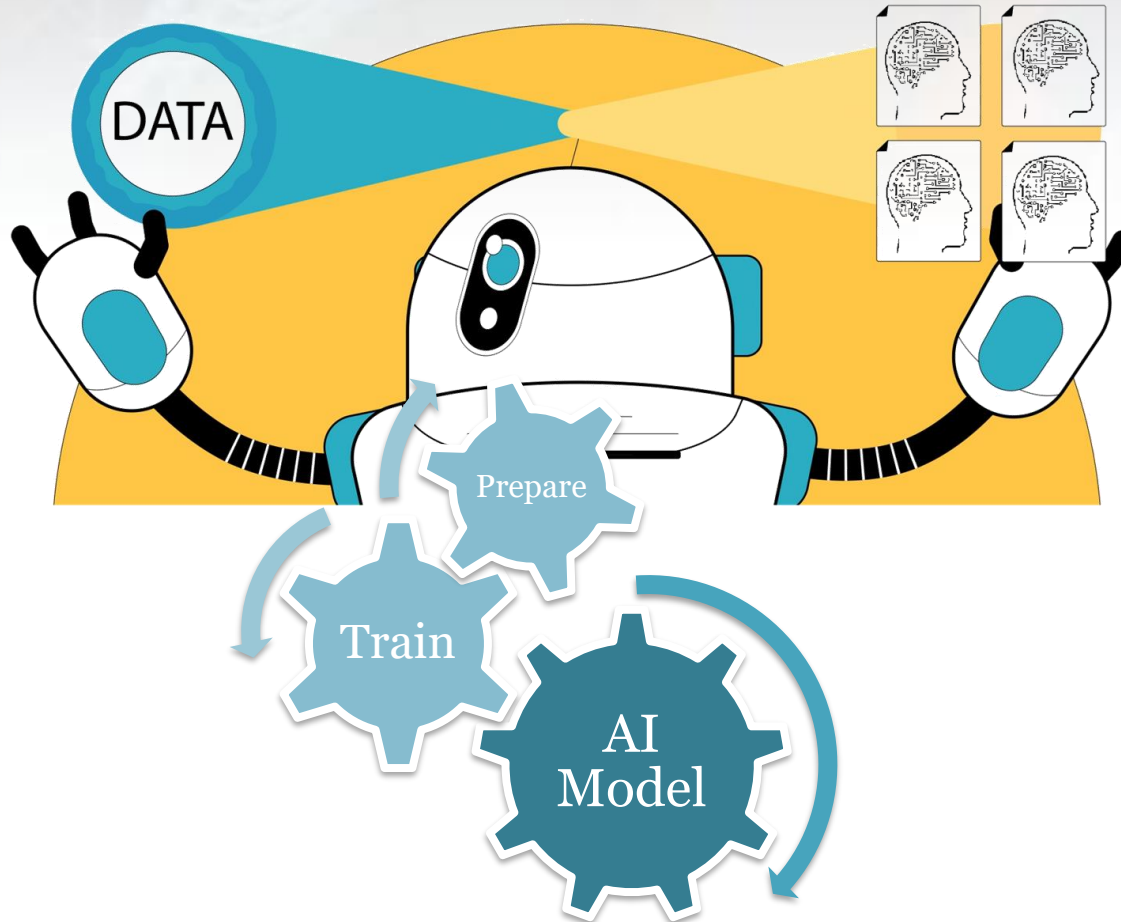


- **Edge components**
(cameras, sensors, tiny computers/edge servers etc.)
- **Data ingestion**
(software collecting data from cameras and other IoT sensors)
- **byteLAKE Cognitive Services**
(byteLAKE's Wet Line Detector collects and analyzes data from the edge)
- **Cloud / Server connectivity**
(straightforward connectivity to the Cloud and on-premise server components via dedicated API, XML files exchange etc.)
- **Deployment**
(on-site integration and deployment)
- **Post-delivery customer care**
(warranty and maintenance)

Cognitive Services for Big Data

AI-powered Big Data / IoT Sensors Data Analytics

Finding answers hidden in Big Data



- **Improve Client Experience**
(analyze past interactions/behaviors to enable personalized decisions)
- **Predict outcomes and trends**
(detect anomalies or suspicious behaviors, patterns and make recommendations)
- **Find optimal solutions**
(sensors data analytics to find dependencies, trends and optimal configurations)
- **Better Decisions**
(recommendations based on historic data analytics)

Bringing AI to manufacturing

Removing the complexity of delivering a complete solution



Data Collection SW

Big Data & Data Mgmt. SW

byteLAKE's Cognitive Services

DevOps SW



AI Consultants

Data Wranglers

Data Scientist

AI engineer

SW Engineers & AI Consultants



IoT/Edge Devices

Big Data & Data Mgmt. HW

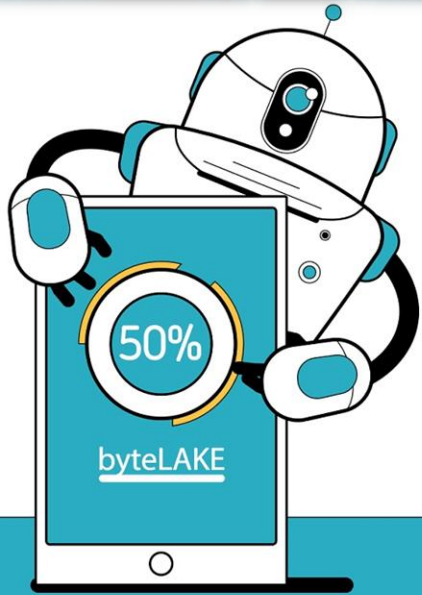
Model Optimization & Mgmt. HW

DevOps HW



Manufacturing Quality Control & Analytics

Cognitive Services
AI for Industry 4.0



brainello

- Documents processing automation
- 1800 invoices processed / hour !
- No templates needed. AI powered.
- Learning over time



AI for Agriculture
Large Areas Visual Analytics



Powered by:
Lenovo

Meet byteLAKE

Artificial Intelligence for Industries

AI

- Highly optimized AI engines to analyze text, image, video, sound, and time-series data.
- Visual inspection for Industry 4.0.
- Document processing automation.
- Complex tasks automation.
- Edge AI, Cloud, on-premise.

HPC

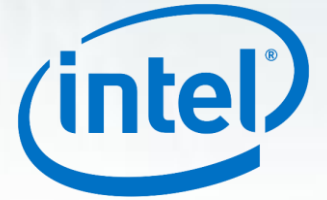
- Accelerating time to results and adapting complex algorithms to many-CPU, GPU, FPGA architectures.
- From single nodes to clusters.

byte
LAKE

**Your software partner
for AI & HPC projects**

R&I • R&D • Licensing

**Experts in adapting
& optimizing
software for**



Select Products



AI for CFD
Ultra-fast results,
radically lower TCO.
New possibilities.



Cognitive Services
AI for Industry 4.0.
Visual inspection,
Big Data analytics.