

# Toshiba's AI Technologies

Here, we will introduce the AI technologies that Toshiba has researched and developed for many years. A variety of these AI technologies are presented on the website, classified into categories such as media data analysis and anomaly detection.

For details, please refer to the "Toshiba AI Technology Catalog" website.  
<https://www.global.toshiba/ww/technology/corporate/ai/catalog.html>



**Language media analysis / Speech dialogue / Media recognition**

**Generative AI (LLM\*) dialog agent**

Appropriately present work procedures even for inquiries from workers with little experience, and improve operating efficiency.

\*Large Language Model

**Scheduling**

**Railway Scheduling**

Automatically create vehicle operation plans considering inspection and cleaning schedules. Create railway timetables robust against disruptions.

**Media data analysis**

**Unsupervised image clustering: IDFD**

Automatically classifying images of similar defects during visual inspections reduces the analyses time required to investigate the causes of defects.

**Media recognition / Anomaly detection**

**Technology for detecting anomalies and defects in images**

AI technology localizes anomalies in images using simple annotations with the label "anomaly/no anomaly" for each image.

Only need to specify whether the image contains any anomaly  
Small burden of annotations

**Placement and Design**

**Design/manufacturing optimization (wind farm layout optimization)**

Automates wind farm layout design with simulators, reducing design time and increasing energy production.

**Operation and Control**

**Automatic construction of Permanent Magnet Synchronous Motor (PMSM) drive logic using reinforcement learning**

Automatically build drive logic using a data-driven approach based on reinforcement learning. Achieves high-level control.

**Operation plan**

**Energy-efficient train run-curve generation**

By combinational optimization considering driving operations, generates run curves that achieve both energy efficiency and punctuality.

**Anomaly detection / Status estimation / Media recognition**

**Risk detection based on images and inspection questions**

Automatically detects risky behaviors or dangerous situations using AI that answers questions about the image.

**Prediction candidate presentation / Numerical analysis**

**Equipment log cross-cutting analysis technology for anomaly diagnosis and predictive detection**

Predictions and judgments can be made using a single model, even when there are data changes or differences between bases.

**Media recognition**

**SATLYS AI Video Analysis**

Pre-trained video analysis AI models, available through on-premises SDKs and cloud-based API services.

**Indexing**

**AI Quality Card Generation System for Automatically Visualizing AI Quality**

Aggregates a variety of AI-related quality information, and automatically creates a quality card summarizing that information in a convincing, easy-to-understand format.

**Numerical analysis / Advice / Language media analysis and summarization**

**Technology that uses generative AI to increase software development efficiency**

Support based on generative AI and using software assets reduces the burden on developers and increases the efficiency of development.

The above are just a few examples. Many AI technologies are introduced on the website.