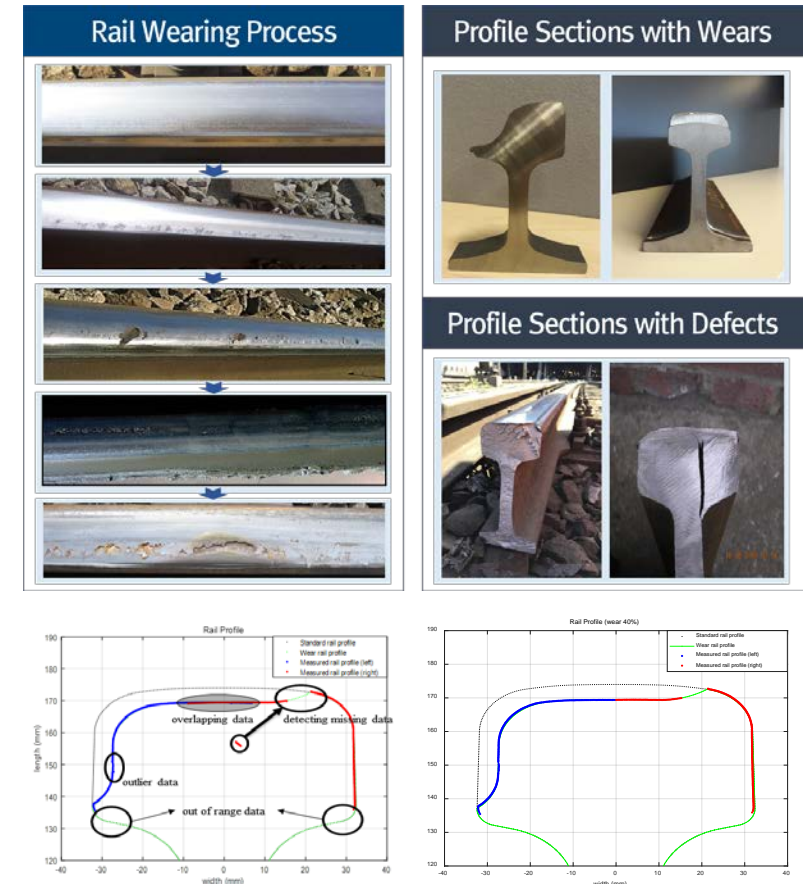# International Joint R&D:
AI-based Rail Profile Formation and Rail Wear Measurement Technology

- **Background of Technology**

  - Rails on railroad tracks are constantly worn, deformed, and defective.

  - Rail profile inspection of operating lines is very difficult due to the unfixed reference point and continuous rail deformation.

  - High-precision profile inspection is required at all times to detect the generation and progression of rail wear, deformation and defects.

- **Key Characteristics**

  - **High-precision automated rail profile shape measurement system**

    : It improves on the low accuracy and inefficiency of traditional manual gauge with unique design and construction

  - **Enables high-precision rail profile measurement for efficient railroad rail maintenance**

  - **Equipped with analysis programs for rail inspection, defect and wear diagnosis, life prediction, etc**

International Joint R&D:
AI-based Rail Profile Formation and Rail Wear Measurement Technology

- **Implementation of Technology**
  - **Development of core technology for high-precision rail profile detection**
    : Shape analysis of direct and oblique wear deformation of railway track rails
    : Developed high-precision rail profile detection mechanism of ±0,05mm or less
  - **Development of wear analysis and prediction technology based on track rail profiles**
    : Detection logic of rail profile's direct and oblique wear
    : Rail condition profile formation and wear amount prediction through machine learning

- **Application of Technology**
  - **Constant inspection for operational track maintenance**
  - **Monitoring rail wear and defects**
  - **Rail maintenance engineering**