

TECH OFFER

AI-Powered Imaging and Diagnostic Solutions for Comprehensive Knee Osteoarthritis Care



KEY INFORMATION

TECHNOLOGY CATEGORY:

Healthcare - Diagnostics

Healthcare - Medical Devices

Healthcare - Telehealth, Medical Software & Imaging

TECHNOLOGY READINESS LEVEL (TRL): **TRL8**

COUNTRY: **SOUTH KOREA**

ID NUMBER: **TO175349**

OVERVIEW

This technology comprises two AI-powered software solutions that automate radiological image analysis to support the diagnosis and evaluation of knee osteoarthritis (OA) and lower limb alignment. One module enhances musculoskeletal diagnostics by detecting radiographic features such as joint space narrowing and osteophytes using criteria like Kellgren & Lawrence grading. It enables standardized, automated evaluations that support radiologists and orthopedic professionals in making accurate assessments.

A complementary module focuses on analyzing lower limb alignment by measuring critical anatomical parameters including the Hip-Knee-Ankle angle, Joint Line Convergence Angle, and Mechanical Lateral Distal Femoral Angle. These automated assessments reduce human error and reading time while improving diagnostic accuracy and consistency.

Designed for seamless integration with Picture Archiving and Communication Systems (PACS), this system fits effortlessly into

existing radiology workflows. Target adopters include hospitals, imaging centers, orthopedic clinics, and telemedicine platforms seeking improved efficiency, diagnostic consistency, and enhanced musculoskeletal healthcare outcomes.

TECHNOLOGY FEATURES & SPECIFICATIONS

The solution functions as Software as a Medical Device (SaMD), capable of receiving, analyzing, and reporting on X-ray images in DICOM format. Key components include:

- Image Input Module – Processes digital X-ray images using standard DICOM protocols.
- AI Analysis Engine – Utilizes a deep learning model to identify pathologies and quantify disease progression.
- Visualization & Reporting Module – Produces intuitive diagnostic visuals to support clinical decision-making.
- PACS Integration Interface – Ensures seamless integration with hospital IT systems via standardized protocols.

By automating diagnostic workflows, the software supports earlier, more accurate diagnoses and helps optimize healthcare operations.

POTENTIAL APPLICATIONS

- Orthopedic & Radiology Departments: Supports image-based OA detection, severity grading, and leg alignment evaluation.
- Hospitals & Clinics: Enhances diagnostic workflows, reduces inter-reader variability, and facilitates second opinions.
- Health Screening & Telemedicine Services: Enables AI-assisted remote screening and preventative care programs.
- Insurance Providers: Supports value-based care through risk stratification and outcome-driven reimbursement frameworks.

UNIQUE VALUE PROPOSITION

This technology enhances diagnostic precision, streamlines clinical workflows, and reduces cost and error through AI-powered automation:

- For Clinicians: Provides reliable, standardized imaging assessments, bridging expertise gaps between junior and senior staff.
- For Patients: Delivers early diagnosis and accessible insights, improving treatment outcomes and engagement.
- For Healthcare Systems: Cuts unnecessary procedures, improves resource use, and enhances productivity.

By automating and standardizing musculoskeletal imaging analysis, this technology provides a scalable, cost-effective, and clinically validated solution that enhances diagnostic precision, operational efficiency, and patient care.