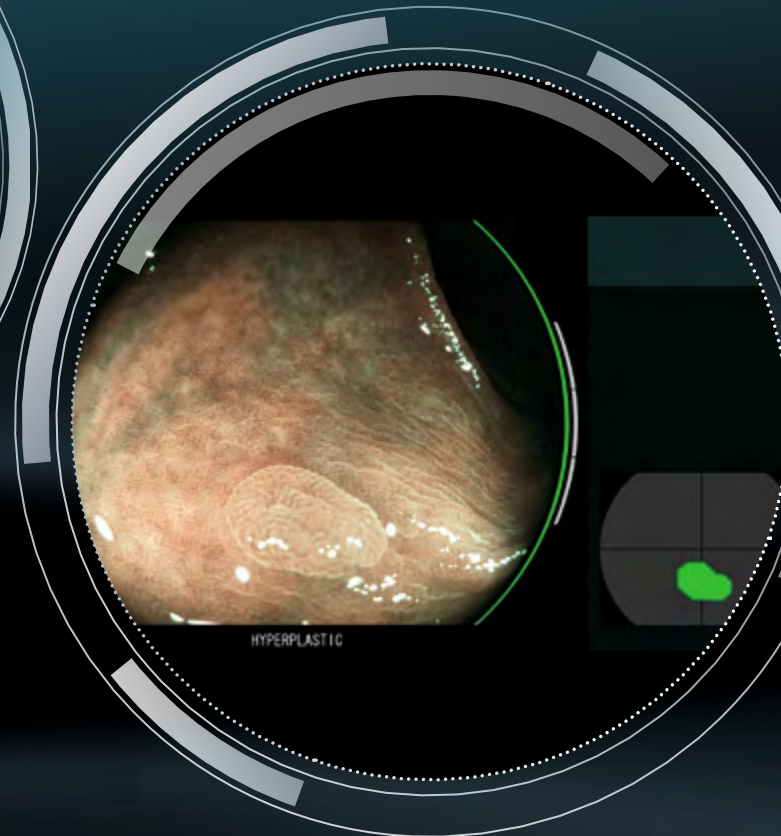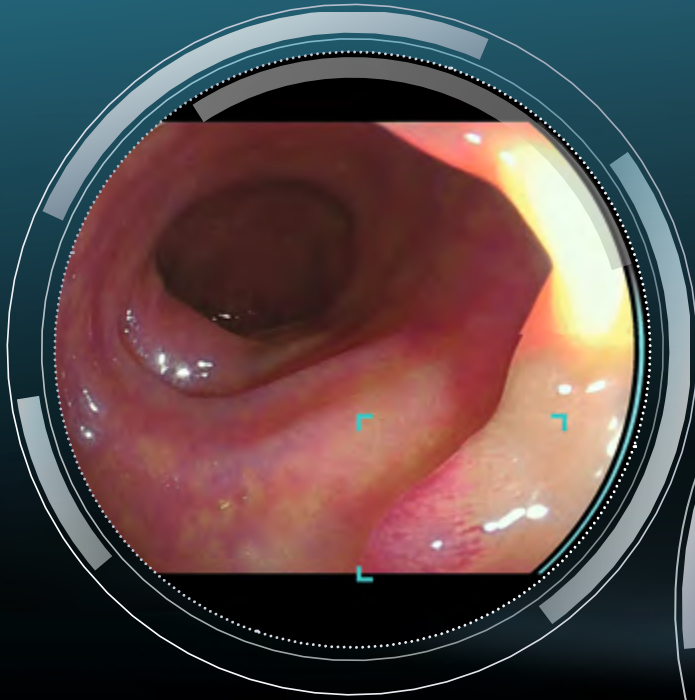# CADEYE

FOR COLONIC POLYPS

HYPERPLASTIC

ELUXEO™ ULTRA MEETS ARTIFICIAL INTELLIGENCE

DETECTION AND CHARACTERISATION LCI BLI

POWERED BY REiLI

FUJIFILM
Value from Innovation

ACCELERATE INNOVATION

Fujifilm has pursued and developed cutting-edge image processing technologies for many years. And in 2018, by utilising these technologies it has developed its proprietary medical AI technology.

REILI – MEDICAL AI TECHNOLOGY

Fujifilm continues to develop technologies that can be applied to medical image diagnosis. One particular focus has been the development of technologies powered by REiLI for the radiology field as well as medical ultrasound and, more recently, endoscopy.

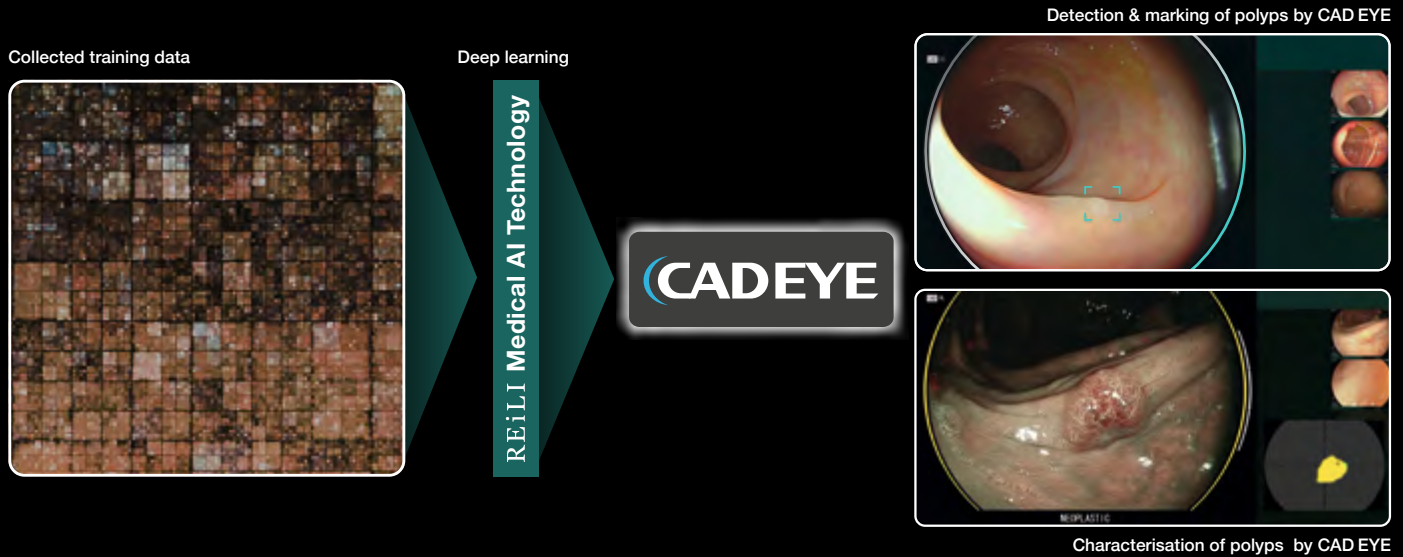## CAD EYE FOR DETECTION AND CHARACTERISATION

CAD EYE has been developed utilising AI deep learning technology and is compatible with Fujifilm's ELUXEO™ endoscopy series to support endoscopic lesion detection and characterisation in the colon.

FUJIFILM'S HISTORY OF INNOVATIONS IN ARTIFICIAL INTELLIGENCE

1956
Launched the "FUJIC" calculator

1996
Launched patented image intelligence algorithms in the consumer photo marketplace

1983
Launched the world's first digital radiography system: FCR

1999
Released the industry's first web-based Radiology PACS

2007
Launched facial image recognition in digital still cameras

2010
Launched Synapse® 3D's simulator for organ recognition/resection

Launched support for mammography CAD

1980

1990

2000

2010

Machine learning
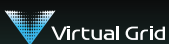
Image processing

Image recognition

DEEP LEARNING TECHNOLOGY

CAD EYE has been trained with a powerful supercomputer located in Fujifilm's global AI technology centre in Tokyo, utilising an immense amount of clinical images using Fujifilm endoscopy systems. As a result, CAD EYE is a customised detection and characterisation support compatible with the ELUXEO™ system.

Collected training data

Deep learning

REiLI Medical AI Technology

CADEYE

Detection & marking of polyps by CAD EYE

Characterisation of polyps by CAD EYE

2018

Launched the REiLI artificial intelligence platform and deep learning engines

REiLI

Brain(s) creative AI center installed NVIDIA's DGX-2 for AI development

Launched AI algorithms for bridge crack detection to support infrastructure improvements
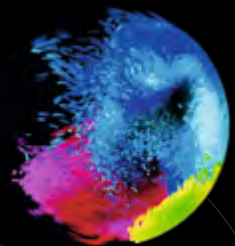
Entered joint research agreement with Indiana University School of Medicine for AI medical imaging development

Announced joint collaboration with Lunit Inc. and Salud Digna to help radiologists evaluate AI technologies for diagnostic imaging

Lunit

2014

Launched Virtual Grid™ processing, which enhances image contrast and clarity

Virtual Grid

2014

Deep learning

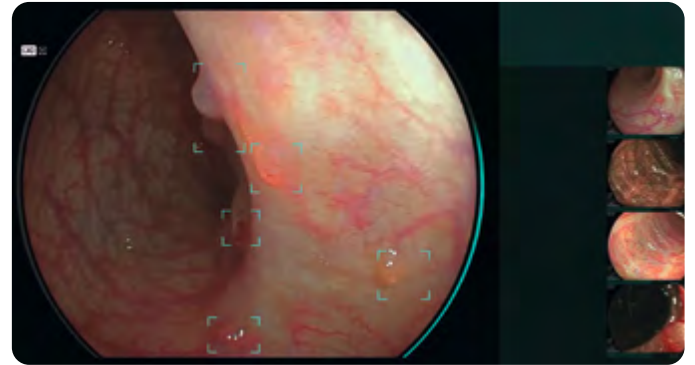**Diagnostic support**

ELUXEO MEETS

REiLI

LCI REAL-TIME **DETECTION**

CAD EYE is aimed to improve the real time polyp detection rate to expert level, helping to recognise flat lesions, multiple polyps simultaneously, as well as any lesions at the corner of the image. CAD EYE Detection is possible with White Light and LCI (Linked Color Imaging) mode.
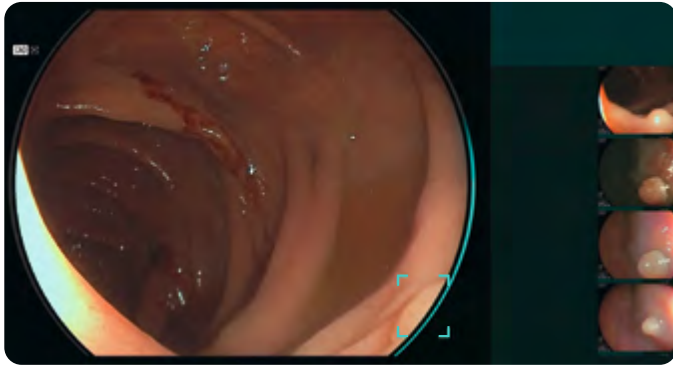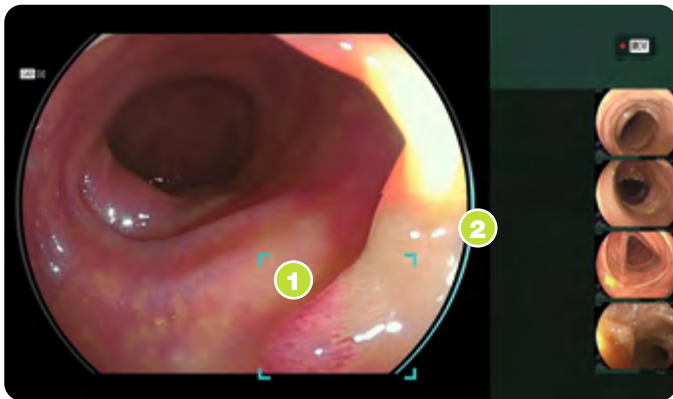

White Light Mode

LCI Mode

USER-FRIENDLY INTERFACE

The development of the interface has been designed to enable comfortable procedures. It does not interfere with clinical images and minimises required eye movement. Its display is designed to be simple and intuitive for excellent support during long hours in the examination room.

1 DETECTION BOX
Displays the area where the suspicious polyp is detected. Different sizes of the Detection Box are available.

2 VISUAL ASSIST CIRCLE
Lights up in the direction where the suspicious polyp is detected.

DETECTION SOUND
Sound signal when a suspicious polyp is detected. Volume can be defined for each user.

REAL-TIME DIAGNOSTIC SUPPORT

The detection and characterisation results are displayed by processing up to 60 frames per second. Without freezing the image, CAD EYE supports real-time diagnosis during standard and magnified observation.

CAD
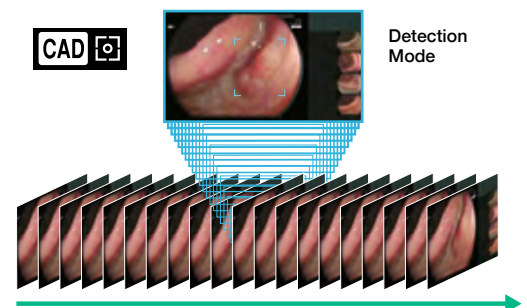
Detection Mode

BLI CHARACTERISATION SUPPORT

Once a suspected polyp is detected by CAD EYE Detection (WLI or LCI), CAD EYE Characterisation – in combination with BLI – can support endoscopists in the diagnosis of the polyp. This function analyses in real-time and without freezing or zooming if a polyp is hyperplastic or neoplastic, which is visually indicated by the use of different colour codes in the Position Map. CAD EYE Characterisation is aimed to make procedures more efficient by increasing the accuracy of diagnosis to expert-level.*
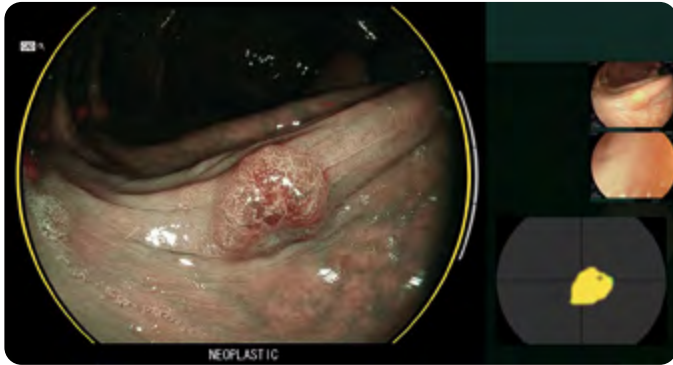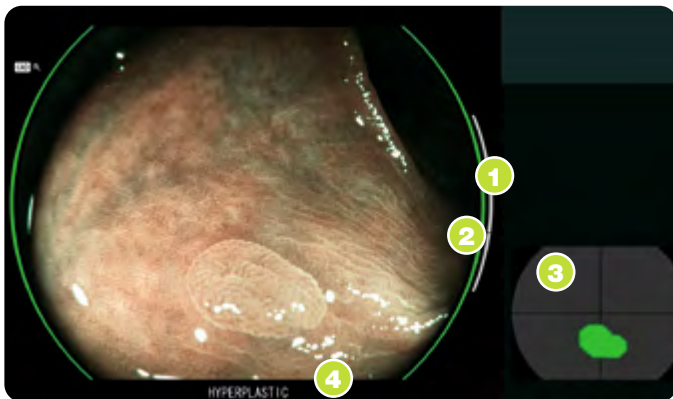
BLI Mode – Neoplastic

BLI Mode – Hyperplastic

GOOD DESIGN AWARD 2019

CAD EYE received the prestigious Good Design Award for its interface.

1 STATUS BAR
Indicates the status of characterisation analysis regarding the suspicious area.

2 VISUAL ASSIST CIRCLE
GREEN: Characterisation HYPERPLASTIC
YELLOW: Characterisation NEOPLASTIC

3 POSITION MAP
Indicates the position of the suspicious area, this software is characterising.

4 CHARACTERISATION RESULT
HYPERPLASTIC: hyperplastic polyps & SSL
NEOPLASTIC: adenoma and cancer

Characterisation Mode
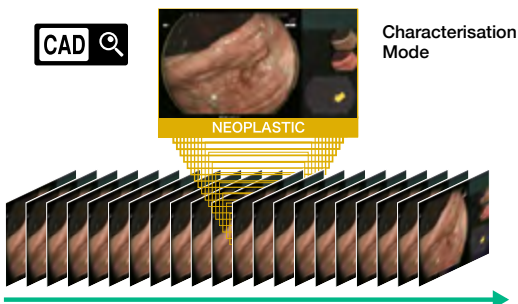
*According to the validation study, the accuracy of non experts with the assistance of CAD EYE Characterisation was equivalent to that of an expert.
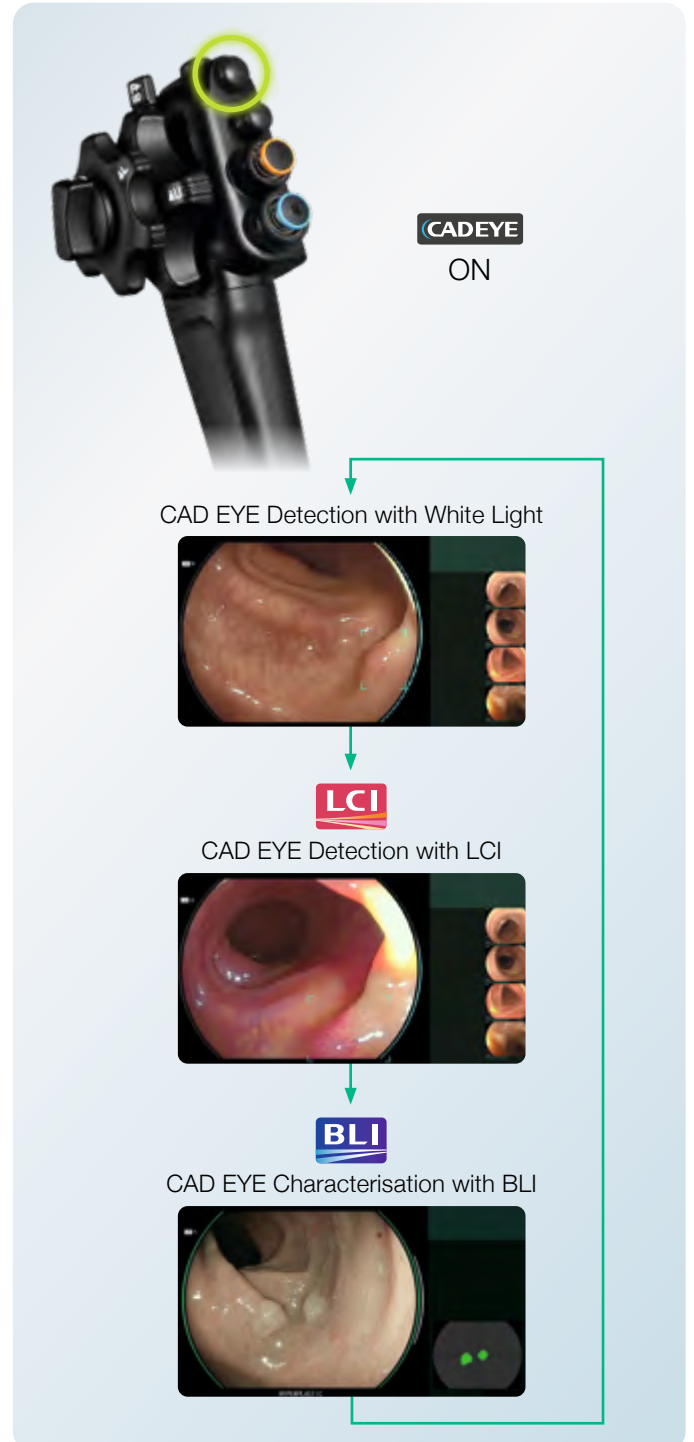
FOR YOUR **DAILY EXAMINATION**

CAD EYE can be activated and deactivated simply by a push on the endoscope button or directly at the processor.

SCOPE SWITCH 3

CADEYE ON   **CADEYE** OFF
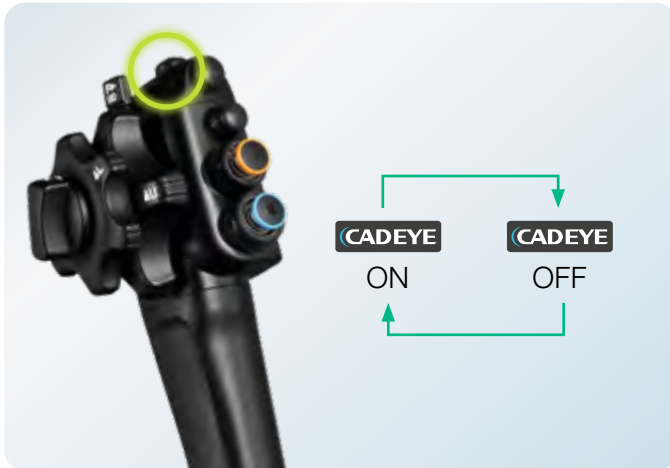
The function of each switch can be defined individually.

MOVIE AND STILL IMAGE RECORDING FUNCTION*
Full HD movies and still images can be recorded and stored at the expansion unit EX-1. It can be controlled via the scope switch or directly at the ELUXEO™ processor.

SCOPE SWITCH 2

CADEYE ON

CAD EYE Detection with White Light

LCI

CAD EYE Detection with LCI

BLI

CAD EYE Characterisation with BLI

* Video and still image files should not be used for diagnoses.

SPECIFICATIONS

CAD EYE works with the expansion unit EX-1 and the CAD EYE software EW10-EC02. With software EW10-SC01 up to 30 hours of movie and still image material can be stored in the internal memory of EX-1. It can easily be controlled with the scope switch or directly at the processor.

Expansion Unit EX-1 HD Full HD endoscopy

Compatible processors	VP-7000, EP-6000
Compatible scopes	700 series colonoscopes*
Output	DVI-I x1, DVI-D x1
Input	DVI-I x1
Memory	30 hours of video (Full HD, MP4) and still image material (Full HD or SXGA selectable, TIFF, JPEG)**
Power rating	100 – 240 VAC +/- 10%, 50/60 Hz, 1.25 to 0.60 A
Dimensions (W x H x D)	370.0 x 99.0 x 465.6 mm
Weight	7.1 kg

 * Movie and still image recording function is compatible with 700/600/500 scopes excluding EUS scopes
** In combination with EW10-SC01 software

Software EW10-EC02

Package Content	USB flash drive for CAD EYE installment for colon polyp detection and characterisation support

Software EW10-SC01 DICOM

Package Content	USB flash drive for basic functions: - Movie and still image recording with CAD EYE overlay - Network function: Still image transfer via FTP/FTPS/Dicom storage and for video recording transfer via SAMBA

1 CADEYE

FOR COLONIC POLYP DETECTION & CHARACTERISATION

2 **MOVIE/STILL IMAGE RECORDING & NETWORK FUNCTION**

3 **FUTURE CAD APPLICATIONS CAN BE INSTALLED**

Expansion Unit EX-1

HD TECHNOLOGY
Combine equipment displaying this logo to ensure that you view HDTV images on your monitor.

DICOM TECHNOLOGY
The goal of the DICOM Standard is to achieve compatibility and improve workflow efficiency between imaging systems and other information systems.

For further information visit www.cadeye.eu

NEVER
STOP

FUJIFILM

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