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IIS

FRAUNHOFER INSTITUTE FOR
INTEGRATED CIRCUITS IIS

ENDOCAD[®]: COMPUTER ASSISTED DIAGNOSIS FOR ENDOSCOPY



EndoCAD[®]

Background

If left untreated, malignant neoplasms of the respiratory and gastrointestinal tracts usually have wide-reaching consequences. Treatment of very large tumors that have been detected too late leads to a considerably limited quality of life for patients. Hence, the objective is early detection of primary tumors and tumor recurrences through suitable preventative exams. Today use of endoscopic systems combined with digital recording and archiving is standard for diagnostic imaging of the aerodigestive tract. With these systems, the morphology and texture of the affected tissue can be analyzed directly. However, many endoscopic exams are currently still associated with diagnostic uncertainty, since often only inadequate differentiation between various mucous membrane types and lesions is possible. A definitive diagnosis always requires the pathological and histological analysis of tissue samples.

Our Solution: EndoCAD®

In order for the specialist to be provided not only with different visual impressions but also with objective support in the diagnosis, automated image-based tissue detection is suitable as a supplement to conventional biopsy. With high-resolution cameras, textural, morphological, color and, if applicable, functional parameters are recorded for characterization of the tissue. Through the use of novel image analysis and interpretation procedures, degenerative tissue or preliminary stages of such changes can be detected and a suggested diagnosis given earlier than was possible before.

Automatic retrieval of similar reference images based on the image content supports case-based diagnosis during reporting of findings. Via this procedure, suitable reference cases, including the relevant patient history data, can be displayed during the exam.

EndoCAD has not yet been certified as a medical device. The Fraunhofer IIS is presenting EndoCAD with the objective of gaining partners for further development, production and marketing.

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