Detection and Follow-Up Assessment of Pleural Thickenings from 3D CT Data

Kraisorn Chaisaowong, Benjamin Bross, Achim Knepper, Thomas Kraus, and Til Aach
Institute of Imaging and Computer Vision
RWTH Aachen University, 52056 Aachen, Germany
tel: +49 241 80 27860, fax: +49 241 80 22200
web: www.lfb.rwth-aachen.de

in: The 2008 ECTI International Conference (Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology Association), an IEEE Conference.
See also BibTeX entry below.

BibTeX:

@inproceedings{CHA08b,
  author = {Kraisorn Chaisaowong and Benjamin Bross and Achim Knepper and Thomas Kraus and Til Aach},
  title = {Detection and Follow-Up Assessment of Pleural Thickenings from 3D CT Data},
  booktitle = {The 2008 ECTI International Conference (Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology Association), an IEEE Conference},
  year = {2008},
  publisher = {IEEE},
  volume = {I},
  pages = {I-489 -- I-492},
  address = {Krabi, Thailand},
  month = {May 14--17},
}

© 2008 IEEE. Personal use of this material is permitted. However, permission to reprint/republish this material for advertising or promotional purposes or for creating new collective works for resale or redistribution to servers or lists, or to reuse any copyrighted component of this work in other works must be obtained from the IEEE.
Detection and Follow-Up Assessment of Pleural Thickennings from 3D CT Data

Kraisorn Chaisaowong\textsuperscript{a,b}, Benjamin Bross\textsuperscript{a}, Achim Knepper\textsuperscript{a}, Thomas Kraus\textsuperscript{c}, and Til Aach\textsuperscript{a}, Senior Member, IEEE

\textsuperscript{a}Institute of Imaging & Computer Vision, RWTH Aachen University, Germany;
\textsuperscript{b}King Mongkut’s University of Technology North Bangkok, Thailand;
\textsuperscript{c}Institute and Out-Patient Clinic for Occupational Medicine, University Hospital Aachen, Germany

kraisorn.chaisaowong@lfb.rwth-aachen.de | http://www.lfb.rwth-aachen.de/en/projects/pleuramesothelioma

Abstract—Pleural thickenings as biomarker of exposure to asbestos may evolve into malignant pleural mesothelioma. The diagnosis is based on a visual investigation of CT images, which is a time consuming and subjective procedure. Our image processing system segments the lung areas, and identifies the pleural contours using thresholding and contour relaxation. A convexity model is then used together with a Hounsfield unit threshold to detect pleural thickenings. The assessment of the detected pleural thickenings is based on a spline-based model of the healthy pleura. Follow-up study between two consecutive data, carried out by normalizing the coordinate system, leads to a diagnosis supporting tool to detect pleural mesothelioma in its early stage.

REFERENCES