Nottingham Research Project

Knowledge Discovery from Pathology Images and Text

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- Research project proposal submitted to the UK Engineering and Physical Science Research Council (EPSRC) – waiting for outcome …

Knowledge Discovery from Pathology Images and Text

- Summary
  - The project seeks to
  - address the need for powerful computer analysis tools to process and exploit the fast growing electronic pathology images and clinical narratives.
  - employ cutting-edge computational techniques and models to jointly mine pathology image samples and their associated clinical narratives to gain new insight into and new knowledge from large volumes of image and text based medical data.

Knowledge Discovery from Pathology Images and Text

Objective #1

- To construct a text and image content searchable pathological image database of colorectal cancer in which each image will be tagged with medical keywords and disease codes sourced from the pathologists reports and indexed with image content features derived from the pixels.

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Objective #2

- To research and develop integrated techniques to jointly mine pathology images and clinical narratives to gain insight into and knowledge from multimodal medical data …

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Objective #2

- … including research methods to discover
  - correlations of image features to medical keywords
  - correlations of a given medical keyword to other medical keywords
  - correlation of image features to diagnosis
  - correlations of medical keywords to diagnosis, and
  - relationships amongst diagnosis, image features, medical keywords, and other relevant information.

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Objective #3

- To develop intelligent and interactive pathologist in the loop knowledge discovery (PILLS) software utilities for integrating pathologists' expert knowledge and information discovered by computational algorithms to enhance pathology knowledge discovery and to aid clinical diagnosis and medical research.

Interactive Human in the Loop Knowledge Discovery …