

FROM MEDICAL IMAGE COMPUTING TO COMPUTER-AIDED DIAGNOSIS TOOLS: SUCCESSES, CHALLENGES, GUIDELINES AND LESSONS LEARNED

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Summary: With advanced in computing technology and data acquisition, medical imaging has enabled clinicians to see inside the human body in less invasive ways, visualize anatomy with much more fidelity and enable more accurate, precise and on time diagnosis of diseases. Medical image computing has played a significant role in the development of computer-aided diagnosis (CAD) tools. Nevertheless, despite the extensive research in medical image localization, segmentation, registration as critical tools for biomarker quantification, the use of CAD tools in clinical practice could be much enhanced. This lecture will outline some of the challenges associated with the slow “translation” of medical image computing tools and their adoption in clinical practice. Several examples encompassing different diagnostic radiology modalities will be showcased, along with a set of guidelines that could be followed to ensure the development of CAD tools with an increased likeliness of clinical use.