Ultrasound Image Processing For the Evaluation of the Risk Of Stroke

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University of Cyprus, E003 Lecture Room

Abstract: Stroke is the third leading cause of death in the Western world. There is therefore an urgent need for better techniques to diagnose patients at risk of stroke, and deliver guidelines for the choice of treatment. Ultrasound measurements of the intima media thickness (IMT) and plaque in the carotid artery are important factors to consider for a patient at risk of stroke and are used as validated measures for atherosclerosis. The carotid arteries are the major vessels that supply the head with blood and are quite often subject to build up of plaque and are visualized with digital subtraction angiography, and 2D Doppler ultrasound. We will present in this seminar a comparative evaluation of despeckle filtering on ultrasound images of the carotid artery, and a new segmentation technique developed, for detecting the IMT at the far wall of the common carotid artery, and the borders of the atherosclerotic carotid plaque in longitudinal ultrasound images of the carotid artery. Furthermore, we present a methodology for texture analysis and image quality evaluation of ultrasound images of the carotid artery.

About the Speaker: BSc, MSc (Dipl.-Ing.), AMIEE, ETEK, VDI, ISES, SEM: Obtained his first degree (BSc) in Germany at the University of Kaiserslautern in electrical engineering at 1986 and then had a Masters specialization in Telecommunications obtaining a Dipl.-Ing. degree (MSc) at the same university at 1990. He had his final thesis in medical image processing and made a publication at 1990 about speckle reduction in medical ultrasound images. He has a specialization in medical image processing. From 1990 to 1996 he was working in the industry as a Telecommunications manager and was involved partially with research in medical image processing. From 1996 to 2000 he was a lecturer at Higher Technical Institute of Cyprus teaching in the Computer Science Department. Since 2000 he is Senior Lecturer at Intercollege Limassol Campus teaching computer introductory courses, digital concepts, digital communications, networks and telecommunications and information systems concepts at BSc and MSc level. He is pursuing his PhD research in the area of ultrasound image of the carotid artery at Kingston University, UK in collaboration with the Institute of Neurology and Genetics in Nicosia-Cyprus. He has made 13 IEEE publications, 1 book contribution, submitted 3 Journal publications, and received two research grants from the Institute promotion Foundation in Cyprus for two research projects together with the Institute of Neurology and Genetics and the Institute of cardiology and genetics in and the University of Cyprus.

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