



Apr 9th, 2008 - 5:00 PM

Detecting and Analyzing Milia-Like Cysts for Malignant Melanoma Diagnosis

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Wilkins, Timothy Ryan; Agbaje, Adedayo; Amdemichael, Leykun; and Nolte, Michael, "Detecting and Analyzing Milia-Like Cysts for Malignant Melanoma Diagnosis" (2008). *Undergraduate Research Conference at Missouri S&T*. 30.
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Major:	Electrical and Computer Engineering
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Advisor's Department:	Electrical and Computer Engineering
Funding Source:	Missouri S&T Opportunities for Undergraduate Research Experiences (OURE) Program

Detecting and Analyzing Milia-Like Cysts for Malignant Melanoma Diagnosis

Malignant melanoma skin lesions contain several key characteristics that dermatologists search for in order to make a diagnosis. These include but are not limited to size, shape, color, and structures within the lesion. This research project focuses on one specific structure: small white dots within the lesion called milia-like cysts, which, when present, indicate that the lesion is benign, not malignant. Thus, the detection of milia-like cysts can help separate malignant melanoma from benign mimics. The group seeks to improve the reliability of detection of this characteristic as a means of diagnosis by analyzing high-quality images of skin lesions with image-processing tools. This is accomplished by first finding the milia-like cysts in the images by identifying them with the eye under the supervision of a dermatologist, then using the image-processing code to identify the dots, and comparing the results. These results then lead us to adjust the program by changing certain parameters to improve the accuracy and reliability of the code in identifying malignant melanoma.

Timothy Wilkins was born in Illinois. He graduated from high school in 2005 on the High Honor roll. He was then accepted into the freshman engineering program at Missouri S&T where he is currently seeking a BS in Electrical Engineering and Computer Engineering. His main involvement outside of school is with his church and the Milia-Like Cysts research.