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Detecting and Analyzing Milia-Like Cysts for Diagnosis of Malignant Melanoma

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Detecting and Analyzing Milia-Like Cysts for Diagnosis of Malignant Melanoma

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.

Leykun Amdemichael was born in Hossana and was raised in Addis Ababa, Ethiopia. He came to the United States in 2003 as a permanent resident. Leykun is a senior majoring in electrical engineering with an emphasis in power engineering. He plans to graduate in December 2008.