DermaSkan: Using Convolutional Neural Networks to Detect and Prevent Skin Cancer in Underrepresented Communities by Using an Android App

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Artificial intelligence is becoming a more widely utilized technology in the healthcare industry to improve predictability and consistency (Science Daily). However, this powerful technology does come with some limitations, one being the datasets used usually neglect people of color (The Verge). This is problematic because the communities most affected by skin disease are people of color (The Atlantic). Skin cancer in people of color is often detected in the late stages, mostly when it is too late to consider life saving treatments. This is caused by skin tone, shortage of dermatologists, and cost of skin checks. The capabilities of artificial intelligence, such as image recognition apps, could revolutionize the dermatology industry by making it more accessible for people to get screened for several skin conditions, including cancer. After creating an app in Android studio and thoroughly testing it on two different phones (One Nord Plus N200 and Motorola Tracfone), the overall accuracy for the One Nord Plus N200 was 71.43% for screening and 48.61% for diagnosing. On the Motorola Tracfone, the overall accuracy was 77% for screening and 52.76% for diagnosing. These are both significant improvements from the machine learning model done in 2022 which had an overall accuracy of 69.33%.

Awards Won:

University of Texas at Arlington College of Science: Scholarship of $10,000