

Yeni Dwi Astuti, 2017, **Generalized Exploratory Factor Analysis and Multivariate Adaptive Regression Spline in Melanoma Skin Cancer Detection Based on Dermoscopy Images**, This undergraduate thesis is under guidance from Dr. Nur Chamidah, M.Si and Ir. Elly Ana, M.Si, M.Si, S1-Statistics Program, Mathematics Department, Faculty of Sains and Technology, Airlangga University, Surabaya.

ABSTRACT

Melanoma is a skin malignant that can be evolving when DNA damage of skin cells on the mutations (genetic defect) that causes form breed quick with malignant cancer. Symptoms and signs advanced melanoma that has known is ABCDE. Everyone is at risk of contracting melanoma, but increase the risk depends on several factors. Risk factors excessive exposure to sunlight can be avoided, but genetics, age, or gender is a risk factors that can not be avoided. Common nevi typically brown or black, can be flat or no elevation, round or oval shape, size less than 6 mm. Various studies at melanoma skin cancer detection based on image processing has done with using mathematical approach. This undergraduate thesis aims to detect melanoma by findings of dermoscopy images using a statistical approach. The steps detection of melanoma skin cancer are image processing, dimension reduction by Generalized Exploratory Factor Analysis method and modeling approach based on Multivariate Adaptive Regression Spline. Data use in this paper consists of 30 melanoma and 30 common nevi images, 40 images are used to build the model and 20 images are used for prediction. The accuracy of the classification on the data in sample is 100%. While the data for prediction with out sample data obtained classification accuracy is 95%.

Keywords: *Melanoma, Image, Generalized Exploration Factor Analysis, Multivariate Adaptive Regression Spline (MARS)*

