MARQUETTE
UNIVERSITY

HELEN WAY KLINGLER
COLLEGE OF ARTS AND SCIENCES

Department of Mathematics, Statistics and Computer Science

COLLOQUIUM ANNOUNCEMENT

Machine Learning Techniques of Analyzing Spectroscopy Data for Age Estimation of Anopheles Arabiensis Mosquito

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11:00 AM, Wednesday December 12, 2018

Cudahy Hall, Room 401

Abstract

Older Anopheles mosquitoes have higher chances of carrying infectious parasites that cause malaria. As well, older Aedes mosquitoes are responsible for spreading dengue, zika, chikungunya. Hence, mosquitoes' age is very important for evaluating the effectiveness of interventions to control those diseases by controlling the life span of the mosquito or by controlling the spread of aged mosquitoes. The traditional biological process of age estimating like ovary dissection is very labor intensive, time consuming and require highly skilled personnel. Mosquitoes' age estimation using Near-Infrared (NIR) spectroscopy that measures the amount of light absorbed by the head or thorax of mosquitoes at different wavelengths is expected to be easier and quick. In this study, we use some pre-processing techniques on NIRS data and compare the result with existing standard methods. We also modify the existing methods by incorporating the changepoint. Changepoint technique is applied to predict age using piecewise model. The piecewise partial least square regression model shows better performance in terms of age grading of the mosquitoes

POST COLLOQUIUM REFRESHMENTS SERVED IN
CUDAHY HALL, ROOM 342 AT 12:00 P.M.