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Engineering algorithms to classify, detect, localize breast and leg tumors

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This lecture will address a variety of topics related to the use of different engineering algorithms and methods such as: Artificial neural networks in both types: feed forward back propagation and feedback recurrent networks, global optimization genetic algorithm, and simultaneous perturbation method (SPSA) and showing how we could be derived the models for the different type's tumors specially those in breast and leg of the human. Ultrasound breast tumor imaging approaches for localization and detection in earlier stage the cancer and how we can use the artificial algorithms to give the final decision instead of using the physician eyes. Furthermore, we will give more details on how we can be used computer aid detection CAD system using a genetic neural learning algorithm. Specifically, we use the estimated 2D ARMA coefficients as inputs to a genetic neural network to classify the ultrasound breast image into three regions: healthy tissue, benign tumor, and cancerous tumor.

Biography

Ahmad Taha Abdulsadda is working in Iraqi Foundation of Technical Education, Al Najaf Technical College, and has studied the breast and leg tumor cancer classification and detection using computer aided detection CAD system for 10+ years. During which time, he has authored more than 26 peer-reviewed papers journals and conference papers. He has served on the editorial boards for the Engineering and Mathematical research, *Journal of Mathematical Research and Applications* (JMRA), *Control Practice Engineering* (Elsevier), and *Journal of optimization*, since 2013. He is a member of the Scientific Advisory Committees for the Iraqi breast cancer organization, and I have served on numerous review committees for master thesis.

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