# Random forest based electroencephalography classification for robotics dexterous hands movement

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## Abstract

This research work is focusing on the applications of AI random forest based Electroencephalography (EEG) classification for robotics dexterous hands movements, for interpretation and understanding of the brainwaves resulting from electroencephalography during a human grasping task. The algorithm has been designed in such a way to allow an understanding and making use of how human is thinking during grasping and fingers movement's events. These thinking patterns are then used to create an intelligent behavior for a robotic hand and fingers movements. The research is novel in a sense; it relies on detecting grasping features for a human grasping using Principle Component Analysis (PAC) or even (ICA), hence to learn these features for robotics applications.

Keywords: Random Forest, EEG, Learning, PAC, ICA.

## Biography

Ebrahim A Mattar completed his Ph.D. in Cybernetics & Robotics, Virginia University Gulf Executive Program MBA, active MIET, MIEEE, AIFAC. Worked on 13 projects, KSU Robotics Project, supervised a number of Ph.D., M.Sc., BSc. published 130 papers, and working in Brainwaves decoding and learning for robotics control. Chairing Continuing Eng. Education, Chairing Electrical and Electronics Eng. Dept. 2004-2009 and 2011-2013, seconded by UOB to BTI, as Director General. Headed a number of committees ABET accreditation committee for 2 terms, 2005-2014. Run 20 short courses in area of robotics, control-automation. He was a member of Bahrain National Higher Education Skills-Innovation Steering Committee.

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