



Medical Optical Imaging in Neuroscience

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ABSTRACT

Functional neuroimaging refers to the study of cerebral function to localize the spatial distribution of the activations. Neuroimaging technology provides information which allows an improvement in cerebral function knowledge in a noninvasive manner. Additionally, neuroimaging technology can have a potential use in the prognosis and diagnosis of pathologies. Within neuroimaging tech, there is a technique in which the physical medium is near infrared light and has gained popularity and can be used to build functional human brain images, known as functional diffuse optical imaging (fDOT). Advantages such as portability, direct measurements of hemoglobin state, temporal resolution, nonrestricted movements as occurs in magnetic resonance imaging (MRI) devices mean that fDOT can be used in research and clinical fields. Here, we will present how the fDOT technology works? from the hardware to 3D image reconstruction, and their applications on human brain.

BIOGRAPHY

Estefania Hernandez-Martin works at the University of La Laguna as researcher awarded by EU NextGeneration. She received her Ph.D. degree in 2018 focused on neuroimaging techniques in the human brain. Her expertise is in the optical field, developing a new approach in the data processing for diffuse optical imaging compared with functional magnetic resonance imaging. Also, she has been working as research associate in both the University of California, Irvine and University of Southern California developing and optimizing algorithms to electrophysiological data sets. Her research focuses on signal processing, modeling, multivariate statistics, and data interpretation for both electrophysiological and neuroimaging data sets that help to explain the behavior of the brain.



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