Independent Component Analysis to Detect Clustered Microcalcification Breast Cancers (2012)

TÃ-tulo:Independent Component Analysis to Detect Clustered Microcalcification Breast Cancers Autores: R. Gallardo-Caballero, C. J. GarcÃ-a-Orellana, A. GarcÃ-a-Manso, H.M. GonzÃilez-Velasco and M.MacÃ-as-MacÃ-asRevista:Â The ScientificWorld JournalVol./Pag.:Â 2012 / 1-6

Ed./Año: Hindawi Publishing Corporation (USA), 2012DOI:10.1100/2012/540457 Abstract:The presence of clustered microcalcifications is one of the earliest signs in breast cancer detection. Although there exist many studies broaching this problem, most of them are nonreproducible due to the use of proprietary image datasets. We use a known subset of the currently largest publicly available mammography database, the Digital Database for Screening Mammography (DDSM), to develop a computer-aided detection system that outperforms the current reproducible studies on the same mammogram set. This proposal is mainly based on the use of extracted image features obtained by independent component analysis, but we also study the inclusion of the patient's age as a nonimage feature which requires no human expertise. Our system achieves an average of 2.55 false positives per image at a sensitivity of 81.8% and 4.45 at a sensitivity of 91.8% in diagnosing the BCRP CALC 1 subset of DDSM.