



Departamento de Ingeniería de Comunicaciones

CONFERENCIA

Methods of Prediction of Infantile Hemangioma Evolution

impartida por:

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Contenido:

Cutaneous hemangioma is the most frequent benign tumor for children. This blood anomaly has a frequency of 10% for children and is more common for females than males. Infantile hemangioma appears soon after birth and, in general, after a period of evolution it regresses by itself. The hemangiomas appear with a high frequency on face and neck and, if they don't regress completely, they may have psychological effects. Sometimes, depending on the size and location of the hemangioma (mainly on the face), a quick decision should be taken to proceed (or not) with surgery, so that the lesions do not cause permanent disfigurement of the patient. Yet, doctors do not know at the moment if, at a given moment of time, how much a hemangioma will progress in the near future. Therefore, an automatic monitoring system for the detection and evaluation of the evolution of hemangiomas would be a useful tool for physicians, helping them in their decision about treatment.

The present lecture presents ongoing work on developing such a system. Based on a series of images of the same hemangioma acquired periodically (typically, one month passes between two successive medical controls for a single patient), we aim at firstly assessing the way the hemangioma evolves over time, and, secondly, at predicting its evolution in the near future. This involves segmenting the hemangioma area, which is made difficult by the variety of shapes and colors the tumor may take. Then, two parameters are computed for each hemangioma, namely, size and degree of redness, as being the factors of most significant importance for assessing the state of the tumor at a given time. A fuzzy system (which incorporates knowledge from experienced physicians) is then developed based on the two aforementioned parameters to assess the evolution of the tumor in time.