

PROJECT / Performance Optimisation in 3D TV Broadcasting Services

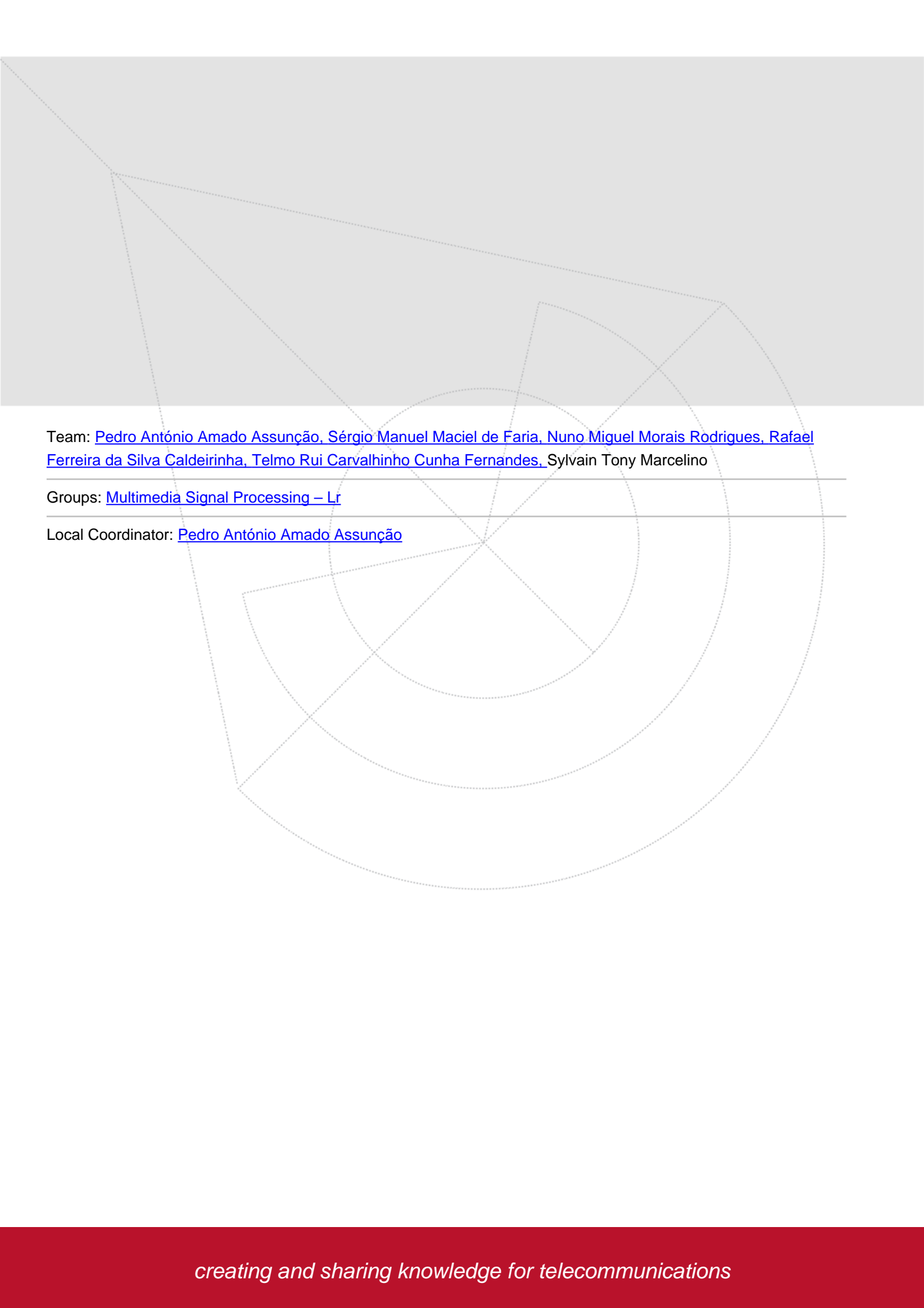
P3DTV

Main Objective:

This project addresses the emerging 3D TV broadcasting services by investigating the problems associated with transmission of different stereo video coding formats. It is comprised of two main parts that run in parallel and communicate between each other by exchanging technical information in order to optimise the performance of the broadcasting system in terms of received quality and channel useful capacity. The research on 3D video deals with characterisation and optimisation of 3D video coding algorithms by developing and testing suitable error resilience methods for broadcasting such type of content. On the decoder side the project addresses error concealment methods to cope with transmission errors and improve the quality delivered to users. The particular issues related to coded depth information are receiving special attention in this project as this is the major component of 3D video which makes it different from classical 2D. Appropriate distortion measures for depth will be used to optimise performance. The project makes use of the most recent video coding standard for video (H.264/AVC) and its extension for multiview coding (H.264/MVC).

Finally, a method to characterise the radio propagation channel will be developed for varying deployment scenarios. A refined method is required to effectively measure the signal coverage in DVB-T networks and to extract the effective parameters for the error pattern generator required for both source and channel coding optimisation of DVB-T transmissions. Additionally, the measured data to be obtained and included in a database for various geometries and at a number of frequencies will represent a quantum improvement, both in volume and accuracy of the database presently available to system designers. This will form a framework to radio system designers to propose fading mitigation techniques based on link level analysis using the proposed error pattern generator.

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