Proposition de recherche doctorale

Analyse et synthèse dynamique d'espaces acoustiques tridimensionnels pour la réalité virtuelle

Mots clés :
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- Unité de recherche : Laboratoire Traitement et Communication de l'Information
- Ecole doctorale : École Doctorale Informatique, Télécommunications, Electronique de Paris
- Domaine scientifique principal: Divers

Résumé du projet de recherche (Langue 1)

Overall Context: There is an increasing interest for interactive virtual worlds due to the wide variety of potential applications in entertainment (collaborative games over Internet, entertainment parks,....), in education or learning applications (« serious games », distant learning,...) or in the professional sphere (virtual spaces with variable degree of interactivity). First limited, these virtual spaces are gradually evolving and are now more sophisticated, are accessible on line and simulate a more realistic audiovisual 3D space. Though, content creation for such 3D spaces remains very costly and cumbersome and does not really integrate real possibilities for interaction. It then seems particularly important to have powerful tools for 3D audio synthesis in order to create dynamic 3D audio scenes from a given 3D graphical set up. Such a sound synthesis can encompass a wide variety of concepts ranging from the synthesis of non-musical sounds (steps noise, glass breaking sounds, environmental sounds,...) to the dynamic synthesis of sound propagation depending on the geometry of the simulated room, on the presence of obstacles in the room and of the position of the sound sources and of the listener in the simulated virtual 3D sound space. In this PhD thesis, it is proposed to address two main aspects in 3D audio rendering, namely an analysis stage or how to efficiently capture a 3D audio scenes with multiple sound sources and a synthesis stage or how to render a flexible and dynamic 3D audio scene using the sound sources captured in the original 3D scenes.

Informations complémentaires (Langue 1)

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