

# Research Grants for PhD students from the China Scholarship Council

Information Form (please read the guidelines carefully on the website [www-csc.utt.fr](http://www-csc.utt.fr))

Supervisor's name :  Given names :

Status (prof., assistant prof., ...) :

Laboratory :  Website address :

Institution :  Website address :

Scientific competence of the supervisor:

Prof. Déforges is a full professor of exceptional class. His principal research interests are image and video lossy and lossless compression, image understanding, etc. He has published more than 200 technical papers and be recently involved in 3 European projects (H2B2VS, VAMPA, 4KREPROSYS). The co-advisor, namely Ass. Prof. Zhang, will bring the expertise in the domain of human visual system modeling, saliency/salient object detection, and subjective/objective image quality assessment. Currently, she is leading an ANR ASTRID project (DISSOCIE) concerning saliency detection in drone videos.

Two major publications in the field proposed for the PhD :

1. F. Chao, L. Zhang, W. Hammidouche, O. Deforges. "SalGAN360: Visual Saliency Prediction on 360 Degree Images with Generative Adversarial Networks". ICME2018, July 2018, San Diego, California, USA.
2. I. Saïdi, L. Zhang, O. Deforges, V. Barriac. "Machine learning approach for global no-reference video quality model generation". SPIE Optical Engineering + Applications, August 2018, San Diego, California, USA.

Website address of the personal page :

**Supervisor's email :**

**Description of the research work proposed for a PhD** **Topic # (see list) :**

Title :

Subject :

Artificial intelligence (AI) has gained a lot of attention since the deep convolutional neural network (CNN) method had a great success in the ImageNet Large Scale Visual Recognition Challenge (ILSVRC) in 2012. Recently, one research domain where the deep learning based methods have been widely used is the saliency detection. Saliency detection, aiming at highlighting visually salient regions or objects in an image, has been a fundamental problem drawing extensive attentions in recent years. It has a wide range of applications in computer vision and image processing tasks, such as image/video compression and summarization, content-aware image resizing, objective image quality assessment, object detection, etc. Though deep-learning based methods have already shown their good performance for the saliency detection in 2D images, their usage or performance is still questionable for the saliency detection in the 360 degree images due to a lack of large-scale datasets. With the rapid development of VR technologies that provide immersive experience of the real-world scenes, the saliency detection in 360 degree images will also draw more and more attention. This work will explore the newest deep learning based methods, such as the GAN, the GNN, and the CapsNet, etc., to see how to improvet their performances for 360 degree images, while avoiding the over-fitting.

Keywords :

Expected collaborations :

Background required from the applicant :

Existence of a PDF file detailing the proposal ("yes" or "no") :

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