

# 学术报告会

时 间: 7月23日 (周二) 15:00-16:00

地 点: 电院群楼2-412

## Optimizing Cosine-based Loss Functions and Gradients for Face Recognition

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### Abstract:

Cosine-based softmax losses significantly improve the performance of deep face recognition networks. However, these losses always include sensitive hyper-parameters which can make training process unstable, and it is very tricky to set suitable hyper parameters for a specific dataset. This talk introduces two methods on addressing this challenge. We first investigate and unify previous cosine softmax losses by analyzing their gradients. This unified view inspires us to propose two novel methods. The first method is based on a novel gradient called P2SGrad (Probability-to-Similarity Gradient), which leverages a cosine similarity instead of classification probability to directly update the testing metrics for updating neural network parameters. The second method is based on a novel cosine-based softmax loss, AdaCos, which is hyperparameter-free and leverages an adaptive scale parameter to automatically strengthen the training supervisions during the training process. The two methods were published in CVPR 2019.

Zhang et al., AdaCos: Adaptively Scaling Cosine Logits for Effectively Learning Deep Face Representations, CVPR 2019 (oral)

Zhang et al., P2SGrad: Refined Gradients for Optimizing Deep Face Models, CVPR 2019

### Biography:

Hongsheng Li is currently an assistant professor in the Multimedia Lab at The Chinese University of Hong Kong. He was a Research Assistant Professor with the same department between 2015-2018. He was an Associate Professor with University of Electronic Science and Technology of China between 2013-2015. His research interests include computer vision, deep learning and medical image analysis. He has published more than 50 papers on top computer vision conferences (CVPR/ICCV/ECCV/NIPS). He won the 1st place in ImageNet Challenge on the track of Object Detection from Videos as a team leader in 2016 and a team co-leader in 2015. He was a guest editor of the Special Issue on Generative Adversarial Network of International Journal of Computer Vision.