

cases	doc_1		doc_2		decision	id
	authors	<ul style="list-style-type: none">Pengfei DouShishir K. ShahIoannis A. Kakadiaris	authors	<ul style="list-style-type: none">Dou, PengfeiKakadiaris, Ioannis A.Shah, Shishir K.	DUPLICATES	180
	title	End-to-end 3D face reconstruction with deep neural networks	title	End-to-end 3D face reconstruction with deep neural networks		
	publication_date	2017-04-17 00:00:00	publication_date	2017-04-17 00:00:00		
	source	SupportedSources.INTERNET_ARCHIVE	source	SupportedSources.CORE		
	journal		journal			
	volume		volume			
	doi		doi	10.1109/cvpr.2017.164		
	urls	<ul style="list-style-type: none">https://web.archive.org/web/20200828051106/https://arxiv.org/pdf/1704.05020v1.pdf	urls	<ul style="list-style-type: none">http://arxiv.org/abs/1704.05020		
	id	id4629803487443254699	id	id4953558947722093187		
	abstract	Monocular 3D facial shape reconstruction from a single 2D facial image has been an active research area due to its wide applications. Inspired by the success of deep neural networks (DNN), we propose a DNN-based approach for End-to-End 3D FAcE Reconstruction (UH-E2FAR) from a single 2D image. Different from recent works that reconstruct and refine the 3D face in an iterative manner using both an RGB image and an initial 3D facial shape rendering, our DNN model is end-to-end, and thus the complicated 3D rendering process can be avoided. Moreover, we integrate in the DNN architecture two components, namely a multi-task loss function and a fusion convolutional neural network (CNN) to improve facial expression reconstruction. With the multi-task loss function, 3D face reconstruction is divided into neutral 3D facial shape reconstruction and expressive 3D facial shape reconstruction. The neutral 3D facial shape is class-specific. Therefore, higher layer features are useful. In comparison, the expressive 3D facial shape favors lower or intermediate layer features. With the fusion-CNN, features from different intermediate layers are fused and transformed for predicting the 3D expressive facial shape. Through extensive experiments, we demonstrate the superiority of our end-to-end framework in improving the accuracy of 3D face reconstruction.	abstract	Monocular 3D facial shape reconstruction from a single 2D facial image has been an active research area due to its wide applications. Inspired by the success of deep neural networks (DNN), we propose a DNN-based approach for End-to-End 3D FAcE Reconstruction (UH-E2FAR) from a single 2D image. Different from recent works that reconstruct and refine the 3D face in an iterative manner using both an RGB image and an initial 3D facial shape rendering, our DNN model is end-to-end, and thus the complicated 3D rendering process can be avoided. Moreover, we integrate in the DNN architecture two components, namely a multi-task loss function and a fusion convolutional neural network (CNN) to improve facial expression reconstruction. With the multi-task loss function, 3D face reconstruction is divided into neutral 3D facial shape reconstruction and expressive 3D facial shape reconstruction. The neutral 3D facial shape is class-specific. Therefore, higher layer features are useful. In comparison, the expressive 3D facial shape favors lower or intermediate layer features. With the fusion-CNN, features from different intermediate layers are fused and transformed for predicting the 3D expressive facial shape. Through extensive experiments, we demonstrate the superiority of our end-to-end framework in improving the accuracy of 3D face reconstruction.Comment: Accepted to CVPR1		
	versions		versions			