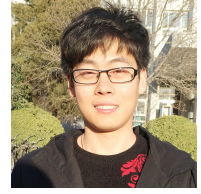


YONGJIE ZHU

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EDUCATION

Beijing University of Posts and Telecommunications *GPA: 3.8*
Bachelor Communication Engineering

Beijing, China
Sep 2015 - Jun 2019

Beijing University of Posts and Telecommunications
Master candidate Artificial Intelligence

Beijing, China
Sep 2019 - Present

EXPERIENCE

Youtu X-Lab, Tencent | Intern

Shenzhen, China

Research Area: computer vision

July 2018 - Apr 2019

During my internship at Tencent, I completed a physically-based 3D face modeling research under the joint guidance of Dr. Chen Li, Senior Researcher at Tencent, and Prof. Boxin Shi at Peking University. We propose a hybrid reflection model of face reflectance and illumination and solve the monocular face reconstruction problem with a self-supervised deep learning method. This method was submitted to TPAMI (major revision, first author).

Camera Intelligence Research Group, PKU (PKU-CI) | Intern

Beijing, China

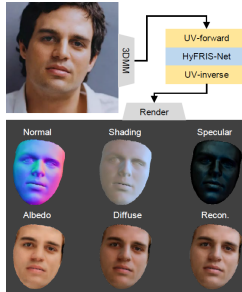
Research Area: computational photography

May 2019 - Present

At PKU-CI, my research topic is photometric image model in low-level vision. Under the guidance of Prof. Shi, I completed the intrinsic image decomposition method in the outdoor scene and further separated the shadow part caused by occlusion from the image. This work was submitted to ICCP 2021 (under review, first author). Also, I built a large-scale HDR panorama image dataset for city scenes, based on which I proposed the first spatially-varying outdoor estimation method using a single limited-FOV image. This work was submitted to CVPR 2021 (under review, first author).

PROJECTS

3D Face Reconstruction (Deep Learning | Tencent Research Project) Pytorch



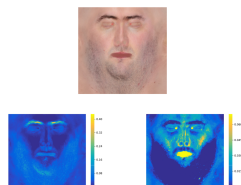
A self-supervised deep learning framework that can estimate the hybrid reflection model and detailed normal of the human face. The proposed hybrid reflectance and illumination representation ensures the photo-realistic face reconstruction. (TPAMI 2020 | major revision)

Intrinsic Image Decomposition (Deep Learning | CIRG Research Project) Pytorch



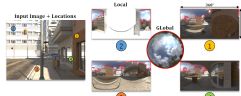
A deep learning method that decomposes the intrinsic components of outdoor scenes. This method can decompose a single RGB image into reflectance, shading (caused by direct lighting), and shadows (caused by occlusion). Compared with traditional methods, our method can further separate the shadow part from the shading image and obtain the intrinsic reflectance closer to the real situation. (ICCP 2021 | under review)

Biophysical Skin Model of Human Face (Deep Learning | PKU-CI and Huawei Japan Joint Research Project) Pytorch



A biophysical skin model is applied to inverse rendering of facial appearance. By exploring the biophysical constraint with a multi-layer skin model (oil layer + melanin layer + hemoglobin layer), we completed the forward face appearance modeling with biophysical skin support and trained a deep learning model to estimate biological skin parameters.

Spatially-Varying Outdoor Lighting Estimation (Deep Learning | PKU-CI Research Project) Pytorch



A dataset and lighting estimation method that deals with spatially-varying outdoor illumination. This dataset was obtained by locally putting virtual light probes in an HDR environment of large-scale virtual city scenes built in Blender. Besides, we proposed a complete outdoor spatially-varying lighting estimation scheme and proved its effectiveness through experiments. (CVPR 2021 | under review)

SKILLS

C++: Eigen, OpenCV, OpenGL, CMake
Python: Pytorch, Numpy, OpenCV, Blender Script, ...
Matlab: Matrix Operations

AWARDS

School scholarship	BUPT
First class award (top 10%)	2016, 2017, 2019, 2020
Enterprise scholarship	BUPT
JJWorld (Beijing) Network Technology Scholarship(top 3%)	2018

RESEARCH INTEREST

At present, I focus on the research of photometric methods for computer vision, including intrinsic image decomposition, physically-based 3D face modeling, inverse rendering, lighting estimation, etc.