CHAOYUE SONG

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https://chaoyuesong.github.io

EDUCATION

Shanghai Jiao Tong University (SJTU), China *Sep. 2016 - Jun. 2020*
B.E. in Information Engineering (AI), School of Electronic Information and Electrical Engineering

RESEARCH INTERESTS

My research interests lie in computer vision and machine learning, with a current focus on 3D vision and generative models.

PUBLICATIONS

- **Chaoyue Song**, Jiacheng Wei, Ruibo Li, Fayao Liu, Chen Qian, Guosheng Lin. **Unsupervised 3D Pose Transfer with Cross Consistency and Dual Reconstruction**, *Under Review*, 2021
- **Chaoyue Song**, Jiacheng Wei, Ruibo Li, Fayao Liu, Guosheng Lin. **3D Pose Transfer with Correspondence Learning and Mesh Refinement**, in *Neural Information Processing Systems (NeurIPS)*, 2021
- Yugang Chen, Muchun Chen, **Chaoyue Song**, Bingbing Ni. **CartoonRenderer: An Instance-based Multi-Style Cartoon Image Translator**, in *International Conference on Multimedia Modeling (MMM)*, 2020
- **Chaoyue Song**, Yugang Chen, Shulai Zhang, Bingbing Ni. **Facial Image Deformation Based on Landmark Detection**, *arXiv*, 2019

RESEARCH EXPERIENCE

Nanyang Technological University *Oct. 2020 - Present*
Research Engineer Advisor: Prof. Guosheng Lin Singapore
- Unsupervised 3D Pose Transfer with Cross Consistency and Dual Reconstruction

- Proposed a cross consistency learning scheme and a dual reconstruction objective to learn the pose transfer without supervision, adopted an as-rigid-as-possible deformer to fine-tune the body shape of the generated results.
- Demonstrated that our method achieves comparable performance as the state-of-the-art supervised methods quantitatively and qualitatively on both human and animal meshes and even outperforms some of them.
- The related paper is under review.

- 3D Pose Transfer with Correspondence Learning and Mesh Refinement

- Learned shape correspondence between different meshes by solving an optimal transport problem without any key point annotations in the correspondence learning module.
- Generated high-quality results with our proposed elastic instance normalization in the refinement module.
- **Accepted by NeurIPS2021.**

SJTU Vision and Learning Lab *Feb. 2019 - Nov. 2019*
Research Assistant Advisor: Prof. Bingbing Ni Shanghai, China
- CartoonRenderer: An Instance-based Multi-Style Cartoon Image Translator

- Achieved the cartoonization by conducting transformation manipulation in the feature space with proposed Soft-AdaIN.
- Trained different models with the same dataset to accomplish the photo cartoonization and demonstrated that our CartoonRenderer performs better.
- **Accepted by MMM2020.**

- Facial Image Deformation Based on Landmark Detection

- Implemented facial image deformations that include the expansion of eyes and the shrinking of noses, mouths, and cheeks.
- Adopted a 106-point facial landmark detector that could provide control points to implement more authentic deformations for facial images.
- Used bilinear interpolation in the expansion and moving least squares (MLS) in the shrinking which both have a good performance.

Research Center of Intelligent Internet of Things, SJTU *Feb. 2019 - Jul. 2019*
Research Assistant Advisor: Prof. Xiaohua Tian Shanghai, China
- Dense QR Decoder Based on TensorFlow Lite

- Developed an APP on Android that could decode plenty of QR codes (more than 160) at the same time, designed the APP with three modules: object detection, object tracking, and user interface.
- Adopted SSD based on TensorFlow Lite in the object detection module, achieved real-time processing (15 frames/s on mobile CPU) and high recognition rate (157/160) by modifying the network structure.
- Designed an algorithm based on constructing an information matrix to achieve the object tracking module, further improved the recognition rate (160/160) through multi-frame fusion.
- **National Undergraduate IoT Design Contest in China, First Prize in Finals (Top 35 of the 2000 teams).**

HONORS AND AWARDS

Outstanding Graduate of Shanghai	Jun. 2020
Outstanding Scholarship of Shanghai Jiao Tong University(Top 10%)	Nov. 2019, Nov. 2018, Nov. 2017
Excellent Student Cadre of Shanghai Jiao Tong University(Top 0.3%)	Oct. 2018

TECHNICAL SKILLS

Programming Language: C/C++, Python, VHDL, Verilog
Deep Learning Packages: PyTorch, TensorFlow
Platforms and Tools: MATLAB, LaTeX, LabVIEW, Unity