

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

- Overall GPA: 87/100 Math-related: 90/100
- Core Courses: Machine Learning (91), Digital Image Processing (94), Discrete Mathematics (100), Thinking and Approach of Programming (C++, 92), Data Structure and Algorithms (89), Linear Algebra (90), Probability and Statistics (92), Calculus (91), Intelligent Internet of Things (96)

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 performed 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

Research Assistant Advisor: Prof. Xiaohua Tian

Feb. 2019 - Jul. 2019

Shanghai, China

- Dense QR Decoder Based on TensorFlow Lite

- Developed an APP on Android which could decode plenty of QR codes (more than 160) at the same time, designed the APP from 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