CHENXU ZHANG

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EDUCATION

The University of Texas at Dallas, Richardson, TX   Jan. 2019 - Present
Ph.D in Computer Science

Beihang University, Beijing, China   Sep. 2015 - Mar. 2018
M.S in Computer Science

Beihang University, Beijing, China   Sep. 2011 - Jul. 2015
B.S in Software Engineering

RESEARCH EXPERIENCE

Audio-driven personalized emotional talking avatar generation   May 2022 - present
- Propose the first emotional talking avatar generation framework with the disentangled speech content and emotion training architecture.
- Develop talking avatar applications, including emotion transfer, emotion exaggeration and personalized emotion.

Deblur-NeRF: moving people rendering from blurry videos   Jan. 2022 - present
- A dataset of rendered human motions with paired realistic and blurred images for quantitative comparison of human motion deblur.
- Referring to the camera's photography process, we design the human motion deblur framework, which can improve the motion blur for any existing nerf-based human motion rendering framework (eg, Neural body, Human-NerRF).

Conversational gestures synthesis from single short video   May 2021 - Jan. 2022
- Propose a novel Disentangled Recurrent Representation (DR^2) Learning framework to synthesize the long diversified gesture sequence with short training video data.
- Propose a disentangled module with a state bank to encourage the learning of unpaired pose and audio embedding, resulting in diverse "one-to-many" mappings in pose generation.
- Develop a recurrent inference module to feed back the last generation as initial pose prior, resulting in long-term diverse videos with full consistency.

Audio-driven talking face video generation   Jan. 2020 - May 2021
- Synthesize photo-realistic talking face videos with audio-synchronized lip motion, personalized and natural head motion, and realistic eye blinks.
- Design a FACIAL-GAN module to encode the contextual information with the phonetic information to model the implicit attributes needed for synthesizing natural head motions.
- Embed eye blinking into an eye-attention map of rendered faces, which achieves realistic eye blinks in the resulting video produced by the Rendering-to-Video module.

3D talking face generation   Jan. 2019 - Jan. 2020
- Construct a person-specific head motion dataset.
- Propose a unified audio-inspired approach to endow 3D talking face with personalized pose dynamics.

Modeling garment seam from a single image   Mar. 2017 - Jan. 2018
- Establishment of a garment seam image database and the parametric seam models.
- Use the Deformable Parts Model (DPM) image detection method for precise seam detection.

Thread-level fabric modeling based on a single macro image   Sep. 2016 - Jun. 2017
- The production of thread-level fabric model and the final rendering of the development work.

PUBLICATIONS

Chenxu Zhang, Chao Wang, Yifan Zhao, Shuo Cheng, Linjie Luo, Xiaohu Guo. DR^2: Disentangled Recurrent Representation Learning for Data-efficient Speech Video Synthesis. (Under Review in AAAI)

Chenxu Zhang, Yifan Zhao, Yifei Huang, Ming Zeng, Saifeng Ni, Madhukar Budagavi, Xiaohu Guo. FACIAL: Synthesizing Dynamic Talking Face with Implicit Attribute Learning. International Conference on Computer Vision (ICCV), 2021.

Chenxu Zhang, Saifeng Ni, Zhipeng Fan, Hongbo Li, Ming Zeng, Madhukar Budagavi, Xiaohu Guo. 3D Talking Face with Personalized Pose Dynamics. IEEE Transactions on Visualization and Computer Graphics (TVCG), 2021.

Yifei Huang, Chenhui Li, Xiaohu Guo, Jing Liao, **Chenxu Zhang**, Changbo Wang. DeSmoothGAN: Recovering Details of Smoothed Images via Spatial Feature-wise Transformation and Full Attention. Proceedings of the 28th ACM International Conference on Multimedia (MM), 2020.

Guihong Wan, Crystal Maung, **Chenxu Zhang**, Haim Schweitzer. Fast Distance Metrics in Low-dimensional Space for Neighbor Search Problems. IEEE International Conference on Data Mining (ICDM), 2020.

Hongyu Wu, Xiaowu Chen, **Chenxu Zhang**, Bin Zhou, Qinping Zhao. Modeling yarn-level geometry from a single micro-image. Frontiers of Information Technology & Electronic Engineering, 2019.

Chenxu Zhang, Xiaowu Chen, Hongyu Wu, Bin Zhou. Modeling Garment Seam from a Single Image. Journal of Computer Science and Technology (JCST), 2018.

WORK EXPERIENCE

Research Intern   May 2022 - Aug. 2022

ByteDance   Mountain View, CA

- Developed the emotional talking avatar generation framework with emotion transfer, emotion exaggeration and personalized emotion applications.

Research Intern   May 2021 - Aug. 2021

ByteDance   Mountain View, CA

- Proposed a novel Disentangled Recurrent Representation (DR^2) Learning framework to synthesize the long diversified gesture sequence with short training video data.

Teaching Assistant   Jan. 2019 - Jan. 2020

The University of Texas at Dallas   Richardson, TX

- Assist in the teaching of following courses: Computer Graphics, Computer Animation.

ACTIVITIES

Reviewer for Journal: TPAMI, TMM, etc.

Reviewer for Conference: CVPR, ECCV, AAAI, MM, etc.

AWARDS

Lars Magnus Ericsson Graduate Fellowships (University of Texas at Dallas)   2019-2020
First Class Scholarship (Beihang University)   2015-2018