

Di Chang

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EDUCATION

University of Southern California

Doctor of Philosophy in Computer Science

Technical University of Munich

Bachelor of Science in Informatics

Dalian University of Technology

Bachelor of Engineering in Electronic Information Engineering

Los Angeles, California, USA

Aug. 2022 – May. 2027(Anticipated)

Munich, Bavaria, Germany

Sep. 2021 – Jul. 2022

Dalian, Liaoning, China

Sep.2018 – Jun. 2021

PREPRINTS

MagicDance: Controllable Human Dance Video Generation with Motions & Facial Expressions

Arxiv

Di Chang(single first author), et al.

2024

- We present MagicDance, a diffusion model-based approach that enables robust appearance control with time-consistent half-body, facial attributes, and background.
- Our model generalizes well on unseen human identities and complex motion sequences without the need for any finetuning on additional data with diverse human attributes by properly leveraging the prior of controlnet pretrained over Internet-scale images.
- Our model is easy-to-use, and can be considered as a plug-in module/extension to Stable Diffusion.
- Our model supports zero-shot 2D animation generation and enables appearance transfer from not only one identity to another but also allows for cartoon-like stylization given only pose inputs.

PUBLICATIONS

LibreFace: An Open-Source Toolkit for Deep Facial Expression Analysis

WACV(Application Track)

Di Chang, Yufeng Yin, Zongjian Li, Minh Tran, Mohammad Soleymani

2024

- We present LibreFace, an open-source and comprehensive toolkit for accurate and real-time facial expression analysis with both CPU-only and GPU-acceleration versions. LibreFace eliminates the gap between cutting-edge research and an easy and free-to-use non-commercial toolbox.
- LibreFace system supports cross-platform running, and the code is open-sourced in C# (model inference and checkpoints) and Python (model training, inference, and checkpoints).

FG-Net: Facial Action Unit Detection with Generalizable Pyramidal Features

WACV

Yufeng Yin, Di Chang, Guoxian Song, Shen Sang, Tiancheng Zhi, Jing Liu, Linjie Luo, Mohammad Soleymani

2024

- We propose FG-Net, a data-efficient method for generalizable facial action unit detection. We are the first to utilize StyleGAN model features for AU detection.
- Extensive experiments on the widely-used DISFA and BP4D datasets show that FG-Net has a strong generalization ability for heatmap-based AU detection achieving superior cross-domain performance and maintaining competitive within-domain performance compared to the state-of-the-art.

RC-MVSNet: Unsupervised Multi-View Stereo with Neural Rendering

ECCV

Di Chang, Aljaž Božič, Tong Zhang, Qingsong Yan, Yingcong Chen, Sabine Süssstrunk, Matthias Nießner

2022

- We propose to use NeRF-like rendering to solve ambiguity of correspondences among views in unsupervised multi view stereo, caused by non-Lambertian surfaces and occlusion.
- We achieve state-of-the-art accuracy among all unsupervised MVS methods until now.

Generalized Binary Search Network for Highly-Efficient Multi-View Stereo

CVPR

Zhenxing Mi, Di Chang, Dan Xu

2022

- We formulate multi view stereo as a binary search problem, and accordingly design three mechanisms to respectively handle classification errors, deal with out-of-range samples and decrease the training memory.
- We achieve state-of-the-art accuracy, and second least memory consumption among all learning-based MVS methods until now.

EXPERIENCE

Research Scientist Intern (Part-Time)

Aug. 2023 – Nov. 2023

Intelligent Creation Team, Tiktok

Mentor: Dr. Yichun Shi, Dr. Xiao Yang, Dr. Hongyi Xu, Dr. Guoxian Song

- Researching on Diffusion Models, Motion Transfer

Research Scientist Intern

May. 2023 – Aug. 2023

Intelligent Creation Team, Tiktok

Mentor: Dr. Yichun Shi, Dr. Xiao Yang, Dr. Hongyi Xu, Dr. Guoxian Song

- Researching on Diffusion Models, Image editing

Summer@EPFL Program

Jun. 2022 – Aug. 2022

Funded by IVRL, École Polytechnique Fédérale de Lausanne *Mentor: Professor Sabine Süsstrunk and Dr. Tong Zhang*

- Researching on 3D Vision, specifically Video Synthesis with Diffusion Models

Guided Research

Mar. 2021 – Jun. 2022

3D AI Group, TUM

Mentor: Professor Angela Dai

- Researched on 3D Vision, specifically Single-View Category-level NeRF

Guided Research

Sep. 2021 – Mar. 2022

Visual Computing and 3D AI Group, TUM

Mentor: Professor Matthias Niessner and M.Sc Aljaž Božič

- Researched on 3D Vision, specifically Unsupervised Multi-View Geometry

Undergraduate Research Intern

Mar. 2021 – Sep. 2021

Multimedia Lab, The Hong Kong University of Science and Technology

Mentor: Professor Dan Xu

- Researched on 3D Vision, specifically Multi-View Stereo

ACADEMIC SERVICE

ECCV 2022

Conference Reviewer

NeurIPS 2022

Conference Reviewer

FG 2024

Conference Reviewer

CVPR 2024

Conference Reviewer

SUPERVISED STUDENTS

Jessica Fu

Undergraduate at USC

CURVE Fellowship

2023 Fall

Kevin Hopkins

Master student at USC

Direct Research

2023 Fall

TEACHING

CSCI 103L Introduction to Programming

USC

Teaching Assistant

2022 Fall

SELECTED COURSES

3D Scanning and Spatial Learning(TUM)

Adcanved Computer Vision(USC)

Multimodal Probabilistic Learning of Human Communication(USC)

Advanced Analysis of Algorithms(USC)

SKILLS

Programming Languages: Python(Preferred and proficient), MATLAB,C,Html

Frameworks: PyTorch, Keras