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## EDUCATION

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- School of Management and Engineering, Nanjing University, Nanjing China** Sep 2012-Jun 2016
- *Bachelor of Engineering, Major in Automation*
  - GPA (4.0 Scale): 3.88 overall (WES) Rank: 2/25
- Department of Electrical and Computer Engineering, University of Michigan, Ann Arbor, MI, USA** Sep 2016-Apr 2018
- *Master of Science in Engineering, Major in Computer Graphics*
  - GPA (4.0 Scale): 3.87
  - Under supervision by Prof Jason J. Corso and Prof. Honglak Lee
  - Offered with two-term part-time RA opportunities respectively by the two professors
- PhD in Computer Science, Simon Fraser University** Jan 2023-Now
- Burnaby, British Columbia, Canada**
- Under supervision by Professor Hao (Richard) Zhang and Professor Ali Mahdavi-Amiri.
  - Interested in Generative Models, Computer Vision and Computer Graphics

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## PUBLICATIONS/ <https://scholar.google.com/citations?user=bfrEr2YAAAAJ>

### **GALA: Geometry-Aware Local Adaptive Grids for Detailed 3D Generation**

Dingdong Yang, Yizhi Wang, Konrad Schindler, Ali Mahdavi-Amiri, Hao Zhang, 2024

ICLR 2025, [OpenReview](#), [arXiv](#)

### **BRICS: Bi-level feature Representation of Image CollectionS**

Dingdong Yang, Yizhi Wang, Ali Mahdavi-Amiri, Hao Zhang, 2023

Arxiv preprint, <https://arxiv.org/abs/2305.18601>

### **AvatarGen: a 3D Generative Model for Animatable Human Avatars**

Jianfeng Zhang, Zihang Jiang, Dingdong Yang, Hongyi Xu, Yichuan Shi, Guoxian Song, Zhongcong Xu, Xinchao Wang, Jiashi Feng, 2022

ECCV Workshop 2022, <https://arxiv.org/abs/2208.00561>

### **D2HNet: Joint Denoising and Deblurring with Hierarchical Network for Robust Night Image Restoration**

Yuzhi Zhao, Yongzhe Xu, Qiong Yan, Dingdong Yang, Xuehui Wang, Lai-Man Po, 2022

ECCV 2022

### **Diversity-Sensitive Conditional Generative Adversarial Networks**

Dingdong Yang, Seunghoon Hong, Yunseok Jang, Tianchen Zhao, Honglak Lee, 2018

ICLR 2019

### **Automatic correction of lithography hotspots with a deep generative model**

Woojoo Sim, Kibok Lee, Dingdong Yang, Jaeseung Jeong, Ji-Suk Hong, Sooryong Lee, Honglak Lee

SPIE 2019

### **Inferring Semantic Layout for Hierarchical Text-to-Image Synthesis**

Seunghoon Hong, Dingdong Yang, Jongwook Choi, Honglak Lee, 2017

CVPR 2018

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## WORKING AND PROJECT EXPERIENCES

**AvatarGen: a 3D Generative Model for Animatable Human Avatars** Apr 2022–Nov 2022

**Bytedance (Mother company of TikTok), Computer Graphics Engineer** Shenzhen, China

In this project we develop a state-of-art 3D generative model for animatable human avatars. Empowered by tri-plane representation, SDF-based volume rendering, decomposed pose guided canonical mapping and

SMPL guided geometry learning, our model can generate high quality 3D geometry model and 2D correspondence of human avatars, significantly outperforming previous methods. Our results can also be animated to arbitrary human poses and are compatible for other downstream tasks such as single image human avatar reconstruction and text-driven avatar generation. Part of this work has been released as an Arxiv preprint.

### **Rendering driven AI Makeup System**

**Jun 2021-Nov 2022**

**Bytedance (Mother company of TikTok), Computer Graphics Engineer**

**Shenzhen, China**

This is a project where we combined CG and CV techniques to get an industrial level controllable and precise makeup effect pipeline. I am the **owner** of this project, **contributor** to most of the algorithms and **main developer** of software components.

1. In the lip makeup part, pairs of data are obtained by cutting edge StyelGAN algorithms and well-designed post-processing algorithms (TPS, Poisson diffusion, CRF, etc.). Then, a delicate Pix2Pix network is trained for deployment on mobile devices. **In this project, we solved the long-existing interframe flickering problem in pix2pix processed videos from the view of frequency domain.** This contribution has been patented and I am the first inventor.
2. In the skin makeup part, I utilize face reconstruction techniques (AlbedoMM + FLAME) together with commercial 3D/rendering software to change human face skin textures. In this project, I greatly refine the reconstruction results by changing the projection method, retargeting landmarks, introducing face-parsing loss, and so on. I also contributed a code that can automatically dump arbitrary bands of Spherical Harmonics bases, gradients of those bases to pytorch/python, libtorch/c++ header, and shader files.

### **Portrait Restoration**

**Sep 2019-Jun 2021**

**Tetras-Sony JV, CG Researcher**

**Shenzhen, China**

In this project, we are trying to improve the imaging quality of portrait pictures taken by modern mobile devices. I am in charge of the main neural network model design and training as well as image pre- and post-processing operation designs. We combined several network design choices (pix2pixHD, styleGAN2, U2Net etc.) to get a highly efficient model. For the network training, we borrowed methods from different topics like general GAN training, deblurring, super resolution and so on. This project also includes many other low-level imaging topics such as quality filtering, network distillation and quantization, color correction, fixed point image processing operations, etc. Our product can achieve multi-face processing (up to 1440x1440 res per face) at the costing only 300ms and has been adopted by many well-known mobile phone manufacturers.

### **Noise Modeling and Estimation**

**Jun 2019-Dec 2019**

**Tetras-Sony JV, CG Researcher**

**Shenzhen, China**

Noise modeling is an important topic for low-level vision tasks and training augmentation designs. we dedicatedly dig into the physical and software cell phone camera system and choose Poisson and Tukey-Lambda distribution to model it. The noise is calibrated on captured Bayer pattern (RAW) images and can cover ISO100 to ISO8000+. This project is a base for other downstream tasks and we publish a paper on ECCV 2022 based on it. I am the owner of this project.