# Jie Min

More details in my Website umjcs.github.io

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## Education

### University of Pennsylvania — GPA 4.0/4.0

- **Master of Science in Engineering, Robotics** || August 2019 - May 2021
- **Highlighted Courses** || [Advanced Topic in Explainable AI (CIS700) A+] [Advanced Topic in Machine Perception (CIS680) A] [Machine Perception (CIS580) A+] [Linear,Nonlinear and Integer Optimization (ESE504) A]
- **Research** || Doing research in **GRASP Lab**, advised by **Prof.Jianbo Shi**.
- **Publications** || One paper in **CVPR20'**, One paper in **ECCV20'**

### ShanghaiTech University — Major GPA 3.8/4.0

- **Bachelor of Computer Science and Engineering** || August 2015 - June 2019
- **Highlighted courses**|| Deep Learning, Computer Vision, Advanced Algorithm, Autonomous Robotics
- **Research Interests** || 3D Human Motion Animation, Unsupervised Learning, Detection/Segmentation
- **Publications** || One paper accepted by **ICCV19'**

## Skills

**Technologies** Python, C++, Pytorch, JAVA, Linux, Multi-GPU Server, Latex, Vim, Git, SQL

**Research Interests** 3D Human Motion Imitation, GAN, Amodal Segmentation, Object Placement

## Selected Research Experiences

### Publication - Liquid-Warping GAN || (Accepted by ICCV19') — Perception Lab, ShanghaiTech Univ.

- **Website / Funny Demos: [https://svip-lab.github.io/project/impersonator.html]**
- Given two single-view images, we use HRM to estimate human pose/shape/camera info, calculate transformation matrix T.
- With no learnable parameters in recover part, train single task and we control both pose/shape/view in unified framework.
- "Copy-paste" warping methods can't hallucinate unseen pixels which results in unrealistic. We use GAN to infer hided pixels instead, and simultaneously warp features on each layer of our model. Results turn out to be smoother with less artifacts.

### Publication - Nested Scale-Editing GAN || (Accepted by CVPR20') — GRASP Lab, U.Penn

- **Paper Name:** Nested Scale-Editing for Conditional Image Synthesis
- Achieve scale independent editing while expanding scale-specific diversity, with introducing novel nested scale disentanglement loss and incorporating a progressive diversification constraint.
- Surgically manipulate coarse/fine level generation results, for image out-painting, interactively recover facial identities, etc.

### Publication - Learning Object Placement by Inpainting for Compositional Data Augmentation || (Accepted by ECCV20') — GRASP Lab, U.Penn

- Study the problem of common sense placement of visual objects in images. Re-composition of object-scene with a key property of contextual relationship preservation, to learn diverse yet plausible object placements without any human labeling
- We achieve diversity by applying Normalized diversification between encoding and location space.
- Two useful applications lie in inserting objects with content-ware relationship to boost the performance of detection/segmentation. Second, Learning meaningful features for object/scene retrieval and image classification.

### Research - Amodal Instance Augmentation/Completion/Composition — GRASP Lab, U.Penn

- Use content-aware composition to estimate affine matrix given objects, discriminate on producing realistic partial occluded scenes. With ground-truths for each object, we could generate free amodal annotation even object is half-occluded.
- Estimate coordinate for cropped occluded objects, then align and complete whole objects condition on the coordinate.(cocoGAN)
- Introduce world coordinate of the whole scene to better understand the relationship between objects and filling occlusions.

### Research Assistant - ADNet || (Submitted to CVPR19') — LILY Lab, NTU, Singapore

- **Paper Name:** Multimodal Attribute-Disentangled Model for Visual Food Recognition, Annotation, and Regeneration
- Propose cross-domain attribute-disentangling network(ADNet), which embedded images and recipe content information. Try to disentangle features to boost and control food recognitioon and Regeneration
- Submitted to CVPR19' - two borderlines and one weakly reject

## Selected Projects

1. MURA || Musculoskeletal Radiographs Bone X-Ray Deep Learning Competition
2. Auto-Picking || Protein Particle Recognition/Segmentation given high-resolution but low-quality Cryo-electron Microscopy images.
3. Design Adaptive Memory module using LSTM in RL model, distill memory buffer based on feature distribution.
4. Training a Sparse-Reward Agent for First-Person Shooter Game using DDRQN and Curriculum Learning.
5. Using Kinect to Detect Human Skeleton and Gestures Point-To-Point Control AR Game Models to Fight.
6. Multimodal Unsupervised "Inverse Style Transfer" on Human Face.