# ShanghaiTech University
# CS276: Computational Photography Fall 2022
# Final Project Requirements

**Group member number**: 1-3 students per group

## Topic requirement
Optional:
1. Choose a project topic (related to the lectures we discussed).
2. Choose a paper to reproduce (we give a paper list, or you can propose one).

## Big days
1. Click on the link below, and write down your group information
   (Due date: **Nov. 27th 23:59**)
   **https://docs.qq.com/sheet/DVk9qSGFZWnN5YmhP?tab=BB08J2**
   (Contain your group member names, topic or the paper you decide to reproduce)
2. Check if your group topic is approved (Check date: **Nov. 28th 23:59**)
3. Final Presentation (Date: **Week 17 Monday Dec.26th 18:00 – 20:00**)
4. Final Report & Codes (Date: **Week 18 Monday Jan. 2nd 23:59**)

## Final Presentation Requirements
1. 15-20 minutes

2. Clear & unified notations

3. Intuitive & brief explanation of the formula

4. Convincing experiments & interpretable results

## Final Report Requirements
1. Latex is required. Use the proper template (IEEE, CVPR, etc.).

2. Must contain these sections: Introduction, Related Work, Implementation (Method), Experiments, Conclusions.

## If the topic is proposed by yourselves,
1. Clearly identify your contribution.

2. Formally introduce the idea.

3. Show the significant differences between yours and others in experiment section.

## If the topic is reproducing a paper,
1. Show your understanding of the idea of the paper.

2. Implement your own version of the method.

3. Show the insufficiencies of the method and make improvement.

# Paper List

Choose one if you decide to reproduce the paper.

1) **Neural Light Field**
   *"Light Field Neural Rendering"*


2) **Neural Surface Reconstruction**

   *"NeuS: Learning Neural Implicit Surfaces by Volume Rendering for Multi-view Reconstruction",*
   *"SparseNeuS: Fast Generalizable Neural Surface Reconstruction from Sparse views."*

3) **NeRF with Polygon Rasterization**
   *"MobileNeRF: Exploiting the Polygon Rasterization Pipeline for Efficient Neural Field Rendering on Mobile Architectures"*

4) **NeRF Acceleration**
   *"TensoRF: Tensorial Radiance Fields", "Instant Neural Graphics Primitives"*

5) **NeRF with High Dynamic Range**
   *"NeRF in the dark", "HDR-NeRF: High Dynamic Range Neural Radiance Fields"*

6) **NeRF with Denoising**
   *"NAN: Noise-Aware NeRFs for Burst-Denoising"*

7) **Denoising for Cryo-EM and Cryo-ET**
   *"Topaz-Denoise: general deep denoising models for cryoEM and cryoET"*

8) **NLOS Human Pose Estimation**
   *"Optical Non-Line-of-Sight Physics-based 3D Human Pose Estimation."*
   *"HiddenPose: Non-Line-of-Sight 3D Human Pose Estimation"*