Lecture 2 Report Requirement

The report should contain 3 parts:
1. **For each non-optional reading, identify ONE major contribution or limitation and defend your choice. (½ page max)**
2. **For each non-optional reading, describe an idea of yours that extends the paper and elaborate as much as possible. (½ page max)**
3. **Answer the questions below.**

For the first two parts, the discussion must have depth (good examples posted on piazza and baidu pan).

Send your report in PDF format to 1430090453@qq.com, named as "report2_[first name][last name].pdf" (e.g., report2_ZhangChen.pdf). The report is due on 10 am, China Standard Time, March 26, 2020.

Report Questions:

"Noise Flow: Noise Modeling with Conditional Normalizing Flows"

1. What is image noise? What are the possible causes of image noise in digital cameras?

2. Explain Eq.(7) in the paper: why the determinant of Jacobian matrix can represent the volume change of a distribution transformation?

3. What is the motivation for using affine coupling layers?

4. What are the reasons we use knowledge about the noise process to establish conditional normalizing flows?

5. What is the role of 1x1 convolution in conditional normalizing flow?

6. Why do we always take positive values for signal-dependent parameters?

"Scaling laws for lens systems"

7. What is f-number? What is the relationship between f-number and focal length, pupil diameter, numerical aperture?

8. Explain why the resolution caused by diffraction is proportional to the wavelength and the f-number.

9. What are the causes of aberration? How to correct it?

10. Why do we set F to $M^{1/3}$ by empirical law?