Lecture 8 Report Requirement

The report only needs to answer the questions below.

Send your report in PDF format to 1430090453@qq.com, named as "report8_[first name][last name].pdf" (e.g., report8_ZhangChen.pdf). Please also include your name (both English and Chinese) at the beginning of the report. The report is due on 10 am, China Standard Time, April 17, 2020.

Report Questions:

"Scaling law for computational imaging using spherical optics"

1. What are the factors limiting the growth of space–bandwidth product (SBP)? How to increase SBP?
2. What is the optical system regarded as in the computational imaging paradigm, and how to do image deblurring?
3. Considering the aberration induced point spread function (PSF), why many commercially available lenses follow the empirical law $f = (F/\#)^3$?
4. For a computational imaging system, what determines the resolution?
5. What are the image priors applied to improve the performance of the imaging system?
6. How to capture the complete sphere using a gigapixel camera design?
7. Why there is Performance versus Complexity Trade-Off in computational imaging system?

"Achromatic metalens array for full-colour light-field imaging"

1. In the light-field image acquisition area, what are the limitations of the microlens array?
2. What are the advantages of the achromatic metalens?
3. How does the achromatic metalens array designed in this paper eliminate the chromatic aberration? What are the advantages of GaN?