

## Sampling and Reconstruction of Visual Appearance: From Denoising to View Synthesis

CSE 274 [Fall 2021], Lecture 10

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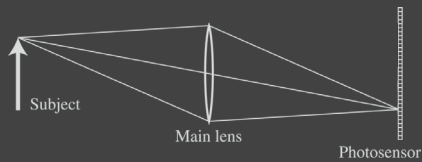
<http://www.cs.ucsd.edu/~ravir>



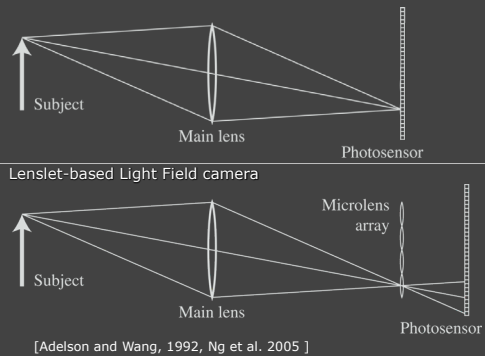
## Applications

- Monte Carlo Rendering
- Light Transport Acquisition / Many Light Rendering
- Light Fields and Computational Photography*
- View Synthesis
- Animation/Simulation (not covered in course)

## Light Field Inside a Camera



## Light Field Inside a Camera



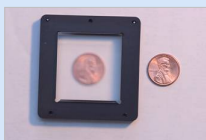
## Stanford Plenoptic Camera [Ng et al 2005]



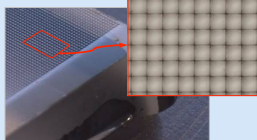
Contax medium format camera



Kodak 16-megapixel sensor



Adaptive Optics microlens array



125μ square-sided microlenses

$$4000 \times 4000 \text{ pixels} \div 292 \times 292 \text{ lenses} = 14 \times 14 \text{ pixels per lens}$$

## Digital Refocusing



[Ng et al 2005]

