

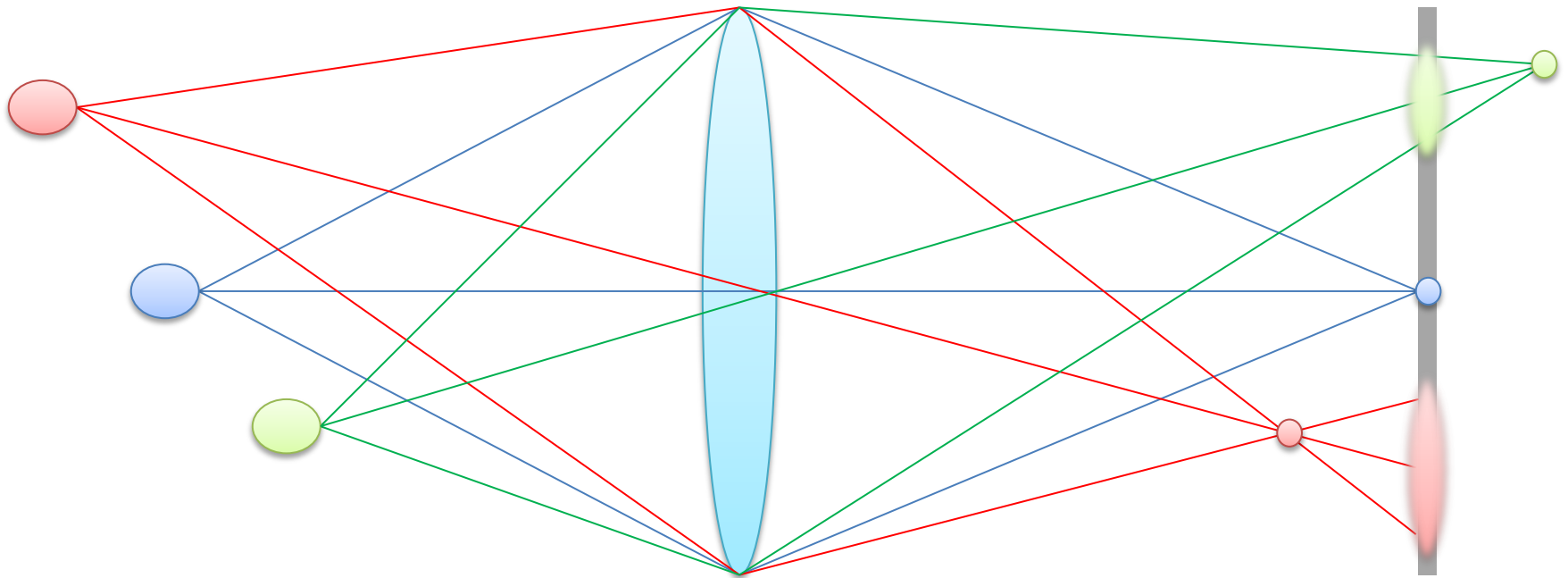
Simulation of Light Field Imaging

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Classical Imaging



Example: The Focus Problem





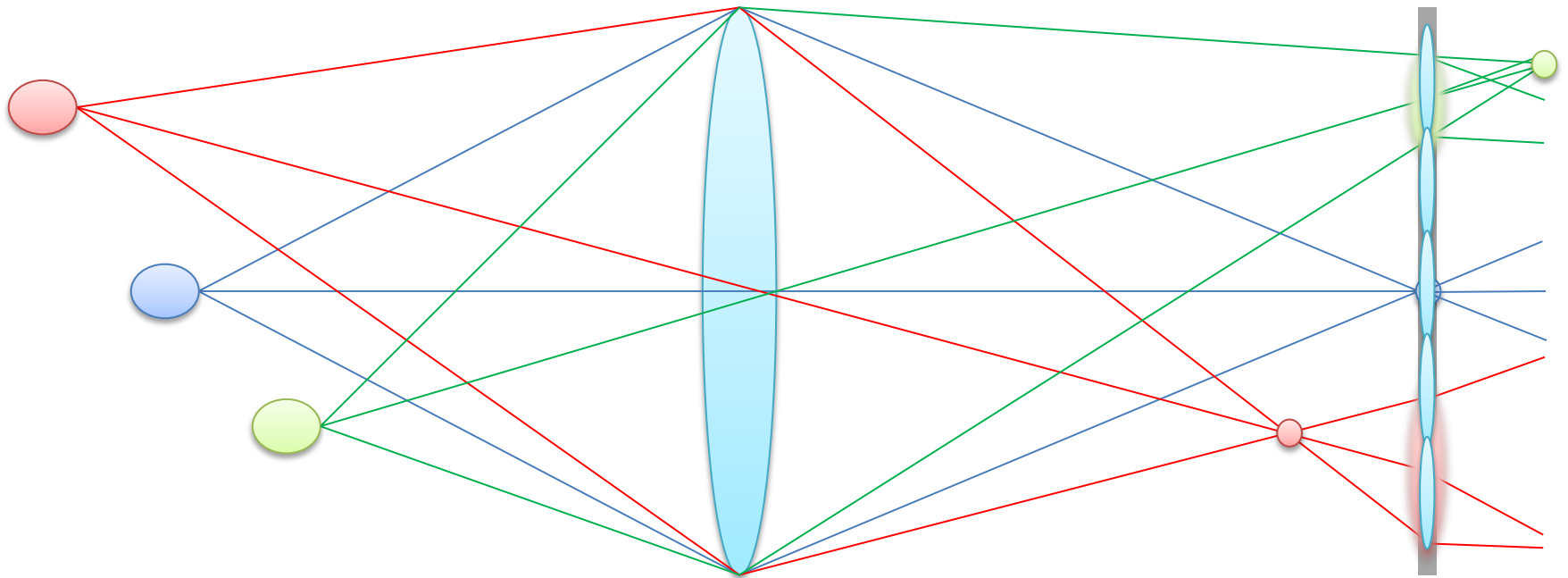
Circa 1890's

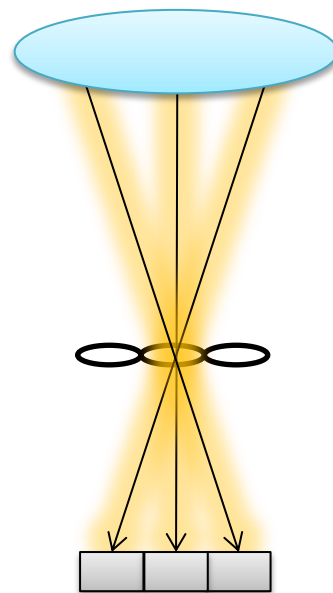
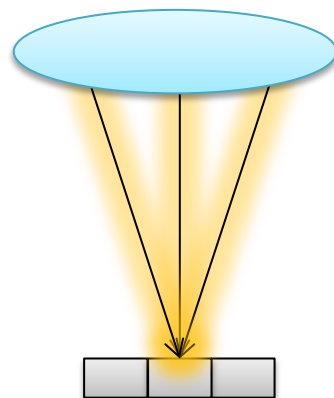


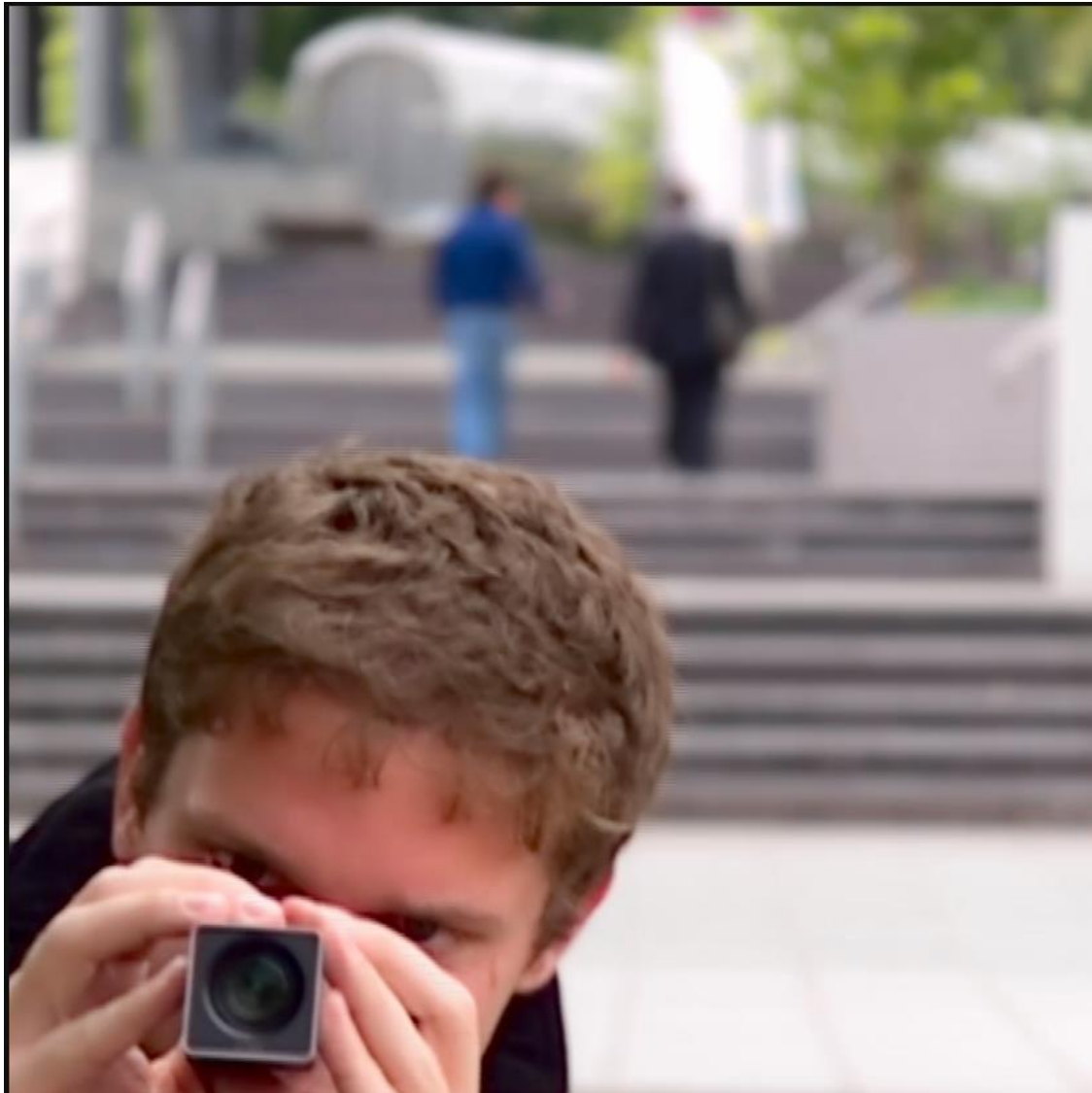
Gabriel Lippmann
1845-1921

1908 – Integral Photography

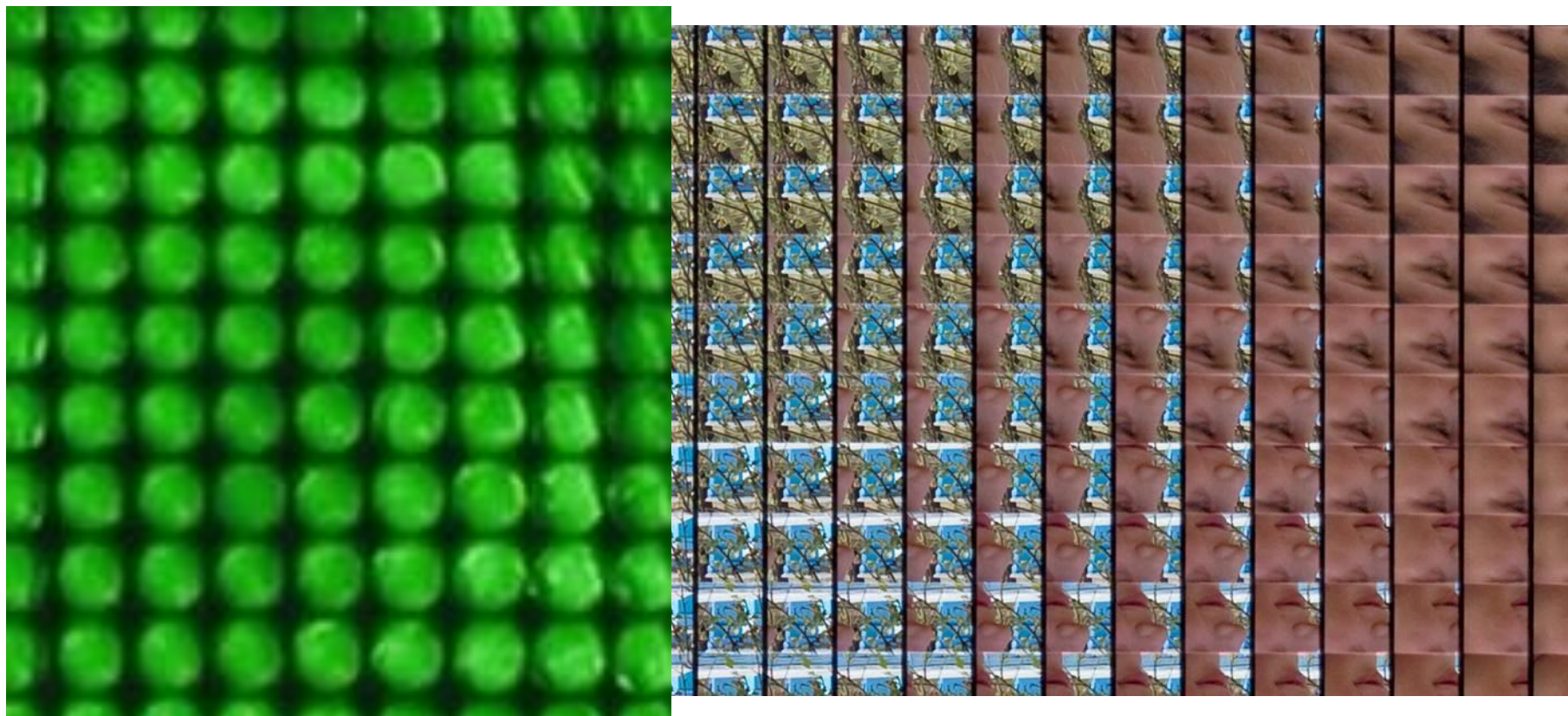
Light Field Imaging



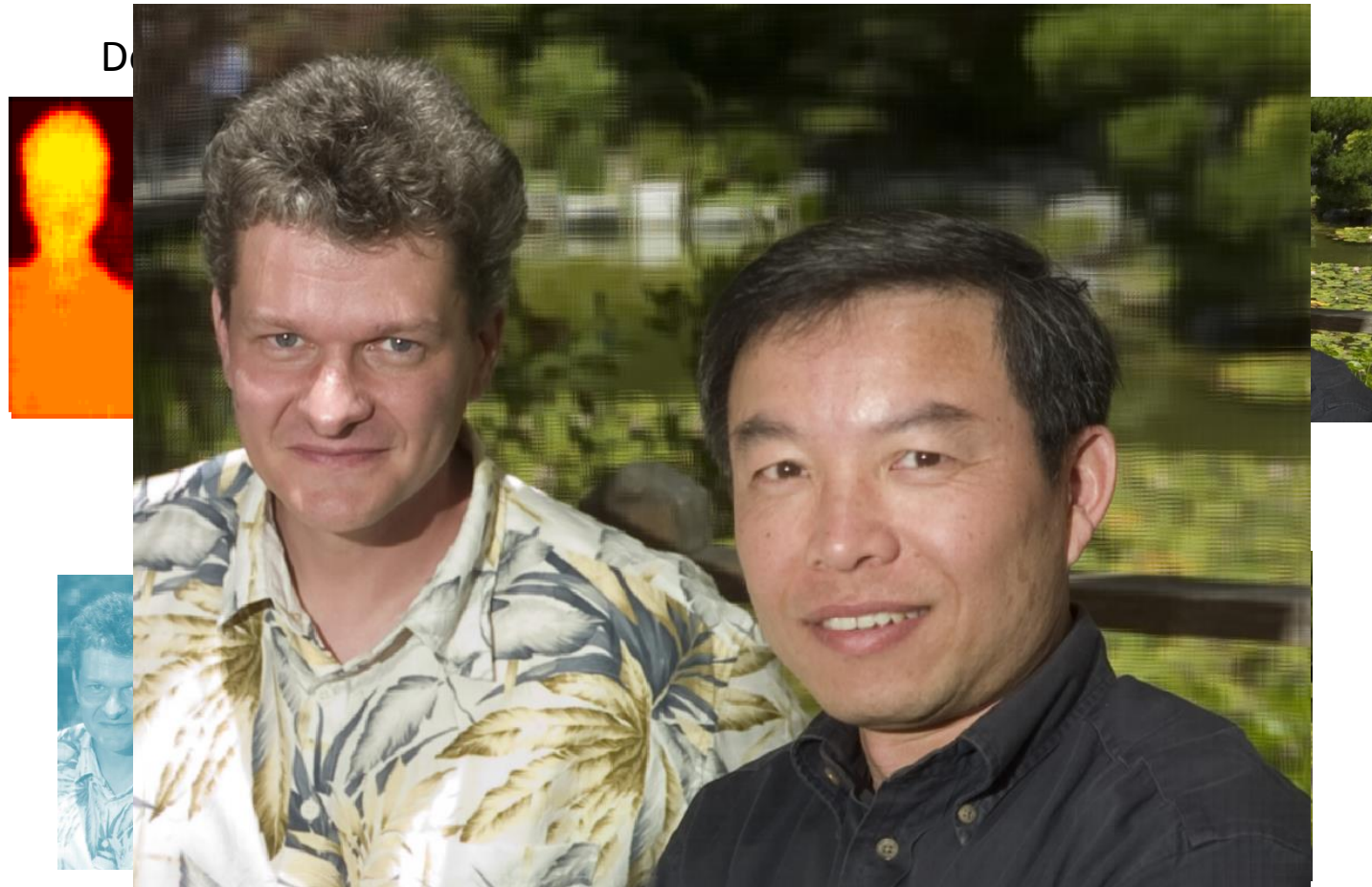




Raw Light Field Images



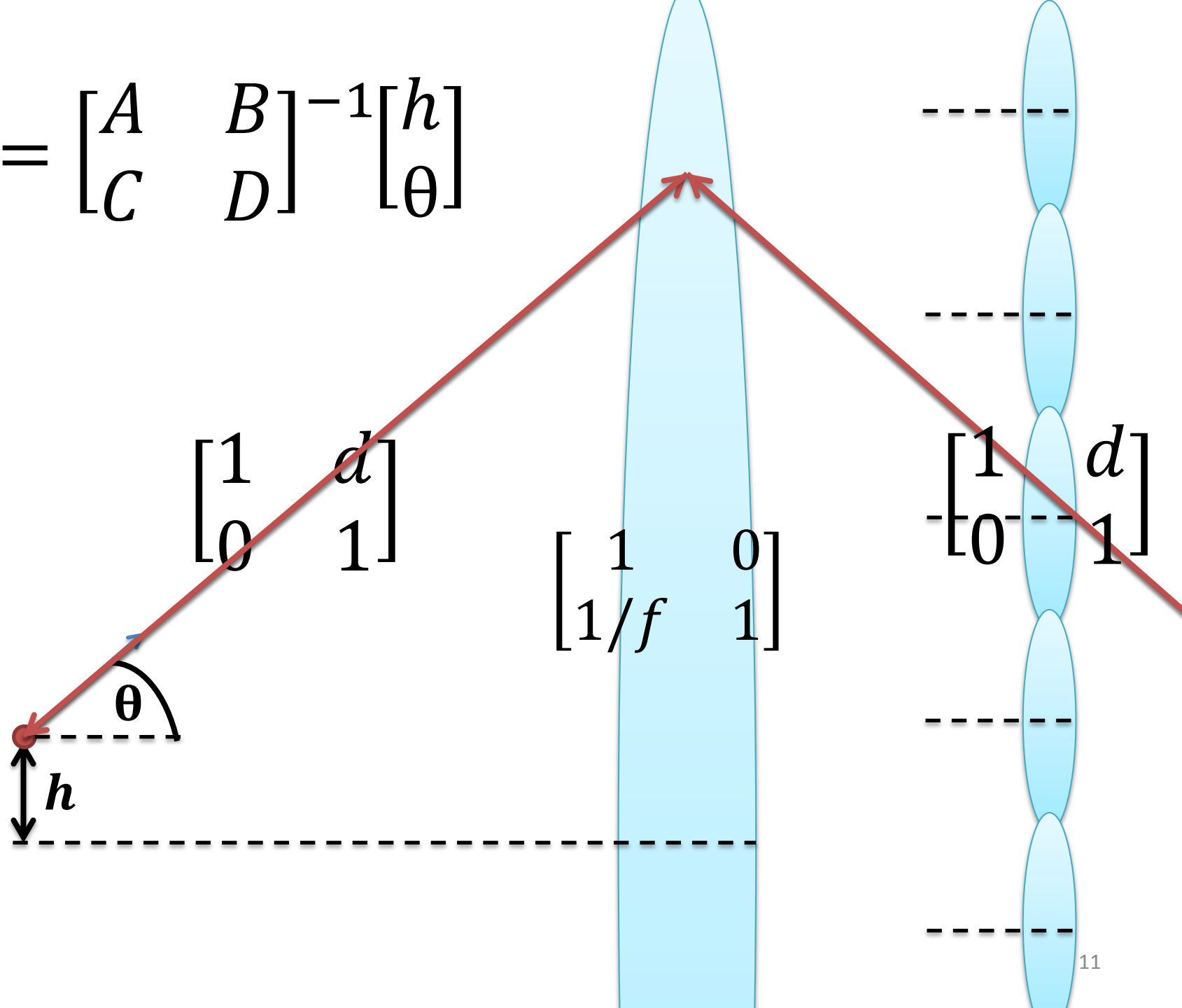
What Can We Do With It?



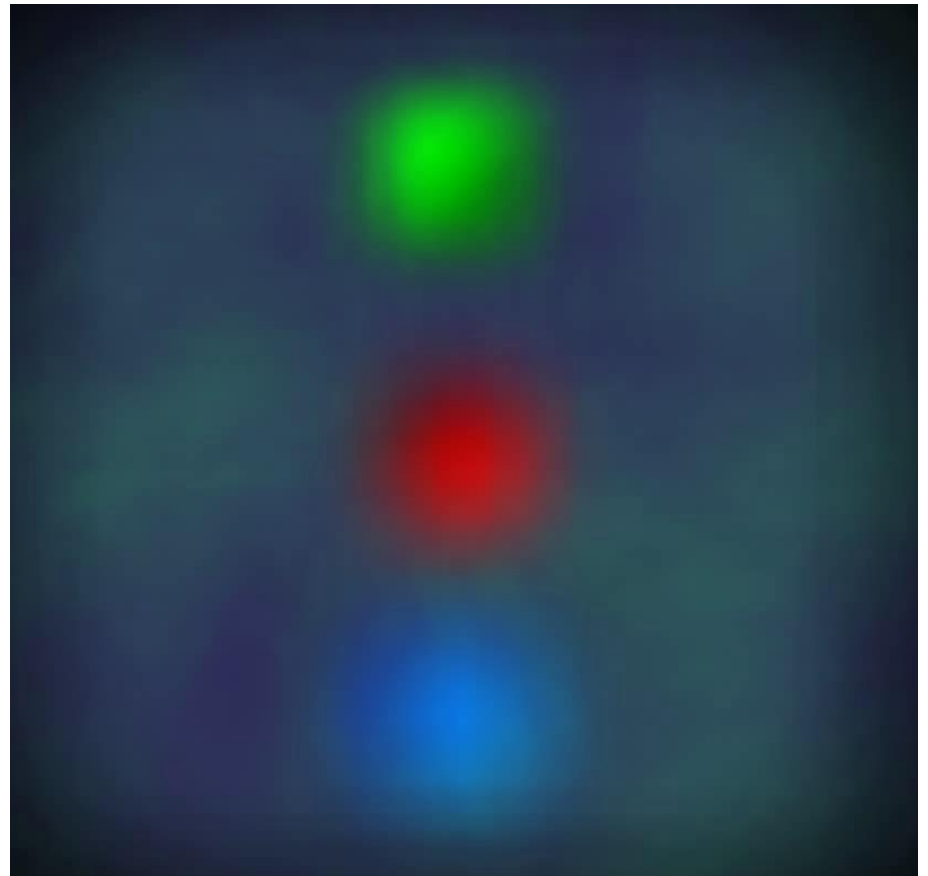
Change Viewpoint

Change Depth Of Field

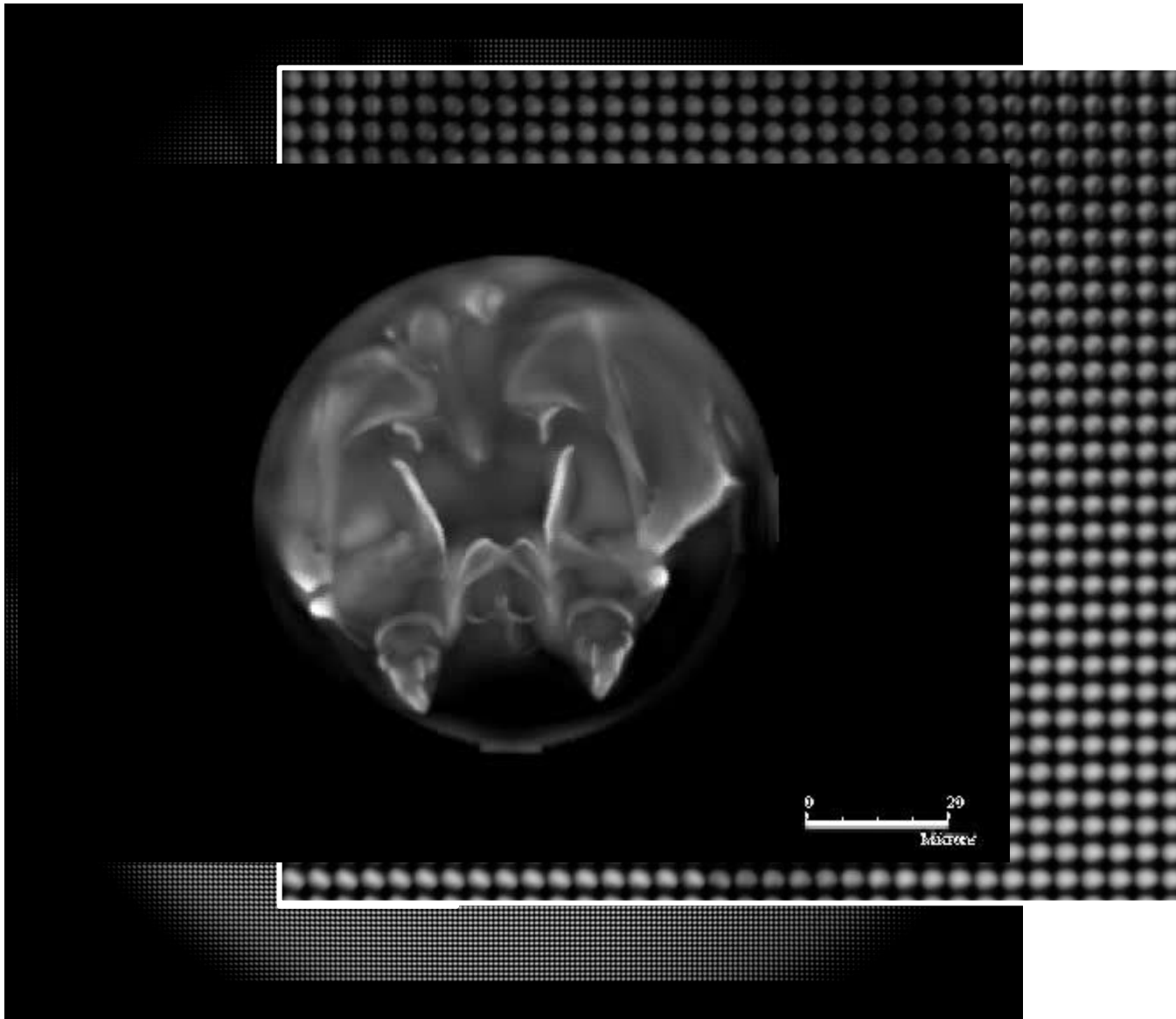
$$\begin{bmatrix} h' \\ \theta' \end{bmatrix} = \begin{bmatrix} A & B \\ C & D \end{bmatrix}^{-1} \begin{bmatrix} h \\ \theta \end{bmatrix}$$



Simulation



Biomedical Applications



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- Prof Kai Bongs
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- Dr Alex Robinson

Image Resources

- Stanford LF Group
- Adobe Research
- Lytro
- Raytrix
- Online PLY Database

BlueBEAR MATLAB Cluster



Engineering and Physical Sciences
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