

Applications of Optical Flow

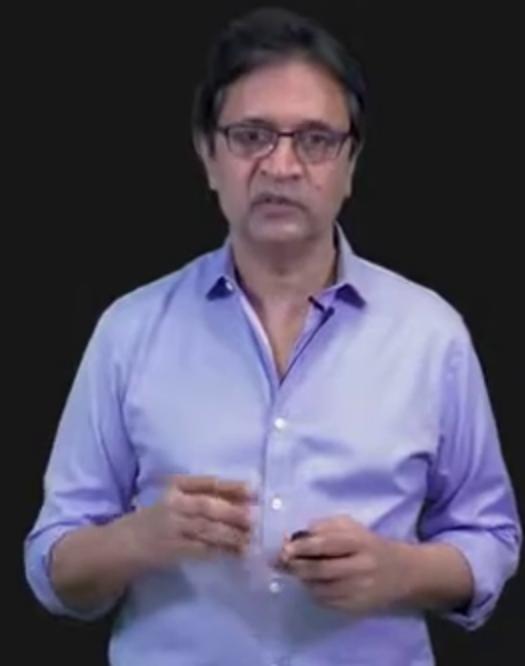
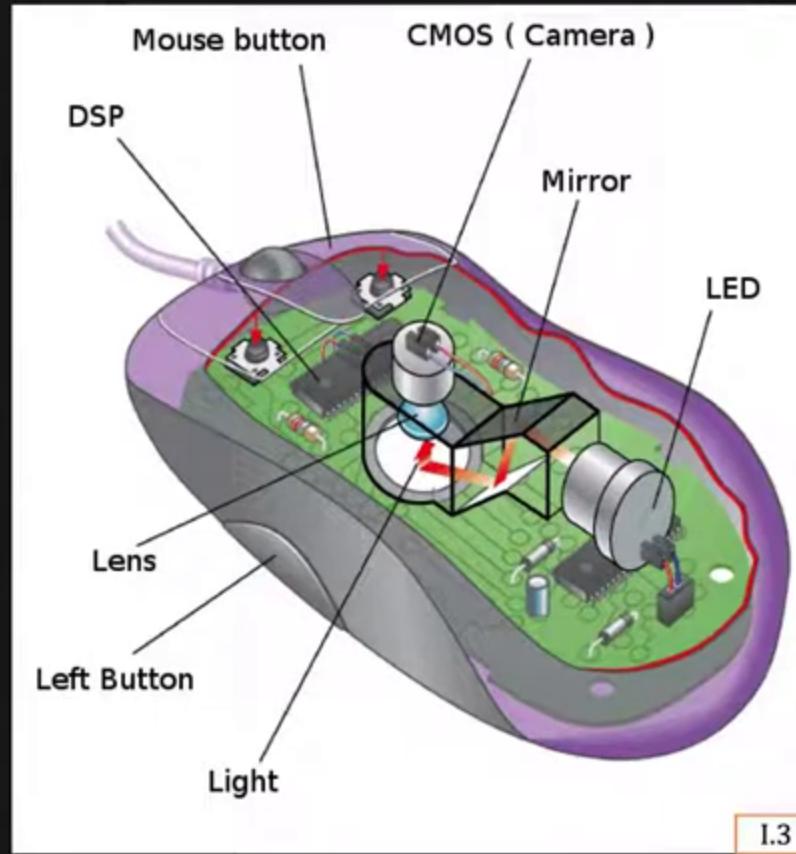
Shree K. Nayar

Columbia University

Topic: Motion and Optical Flow, Module: Reconstruction II

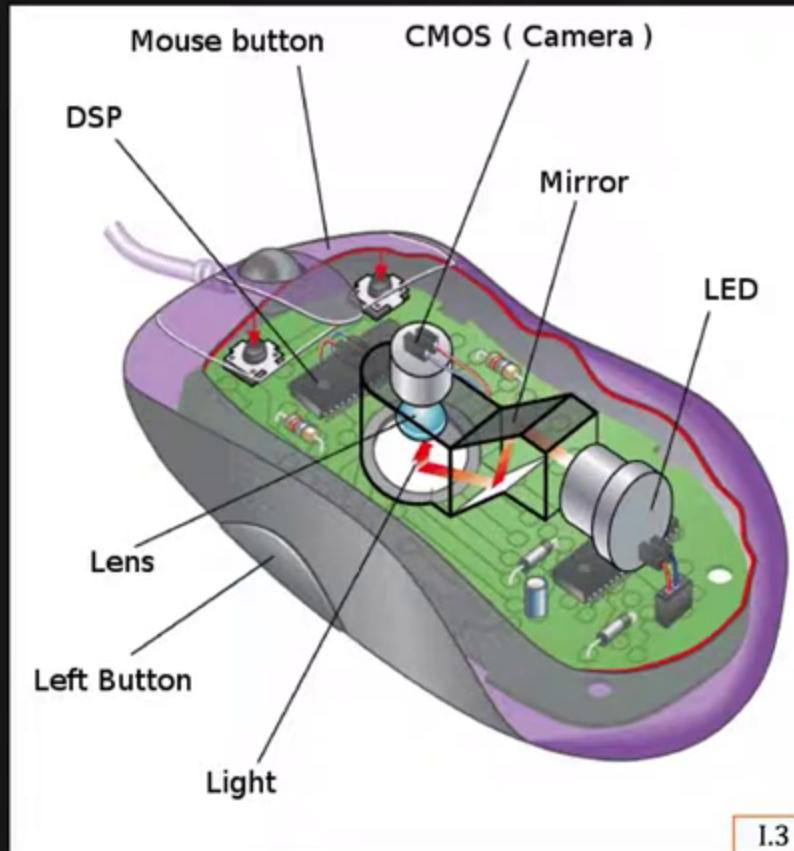
First Principles of Computer Vision

Optical Mouse



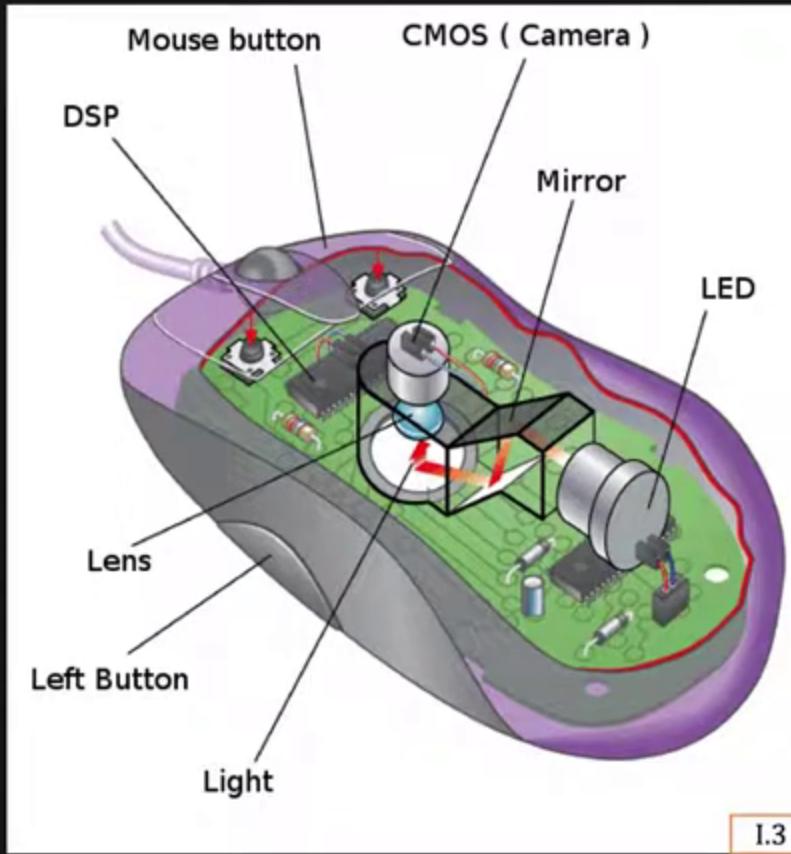
Estimating Mouse Movements

Optical Mouse



Estimating Mouse Movements

Optical Mouse

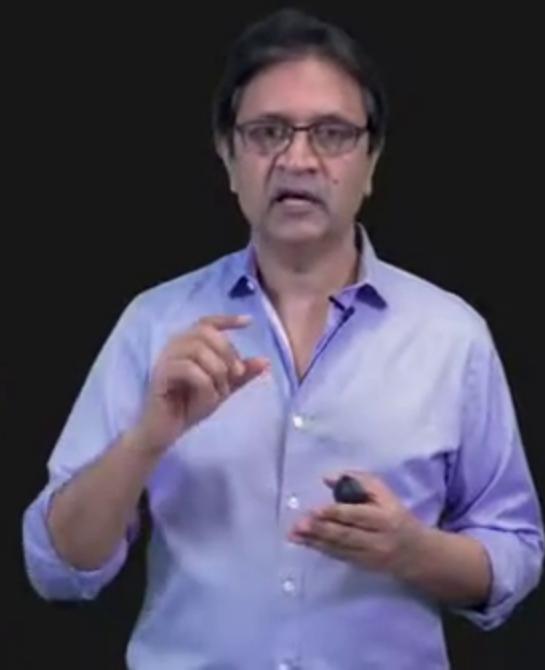
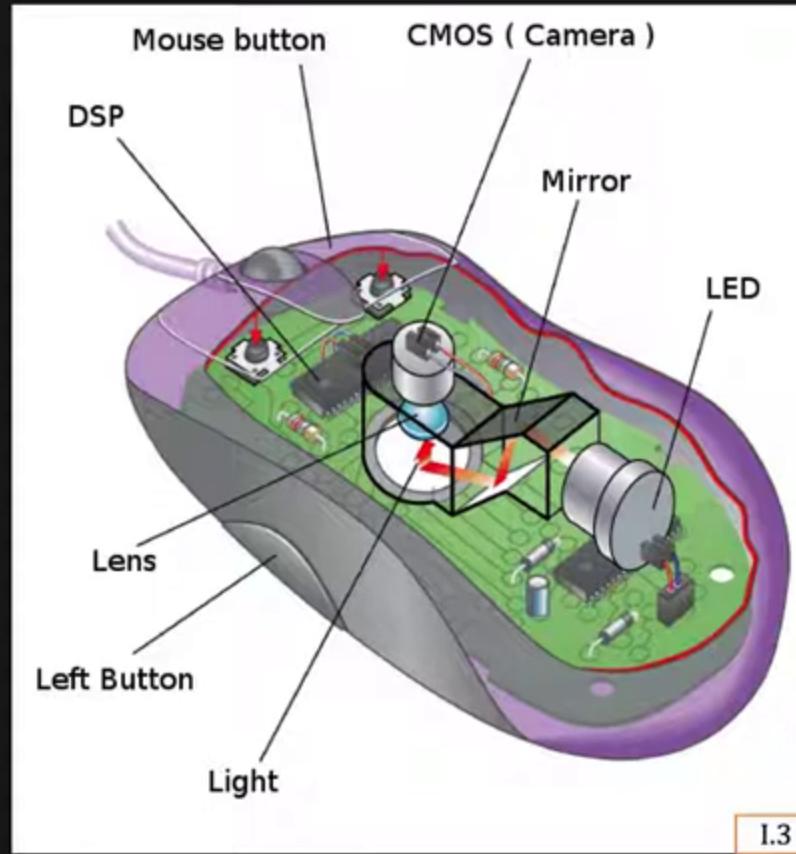


I.3



Estimating Mouse Movements

Optical Mouse



Estimating Mouse Movements

Traffic Monitoring



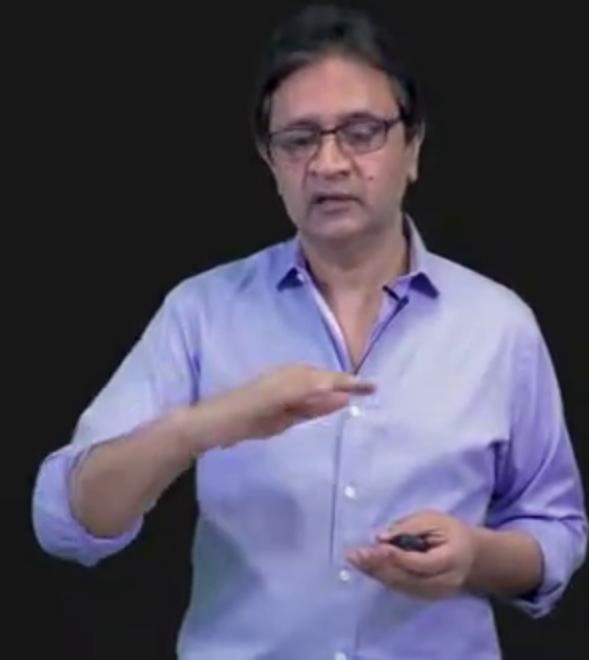
Finding Velocities of Vehicles



Traffic Monitoring



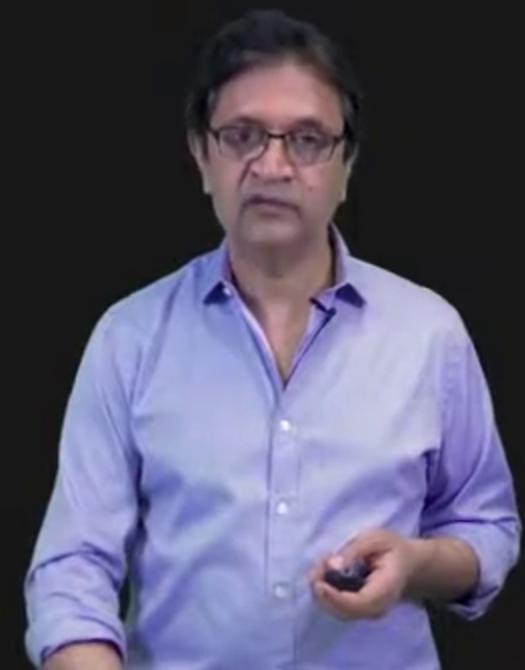
Finding Velocities of Vehicles



Traffic Monitoring



Finding Velocities of Vehicles



Traffic Monitoring



Finding Velocities of Vehicles



Traffic Monitoring



Finding Velocities of Vehicles



Video Retiming



Optical Flow is used to determine the intermediate frames to produce slow-motion effect.



Video Retiming



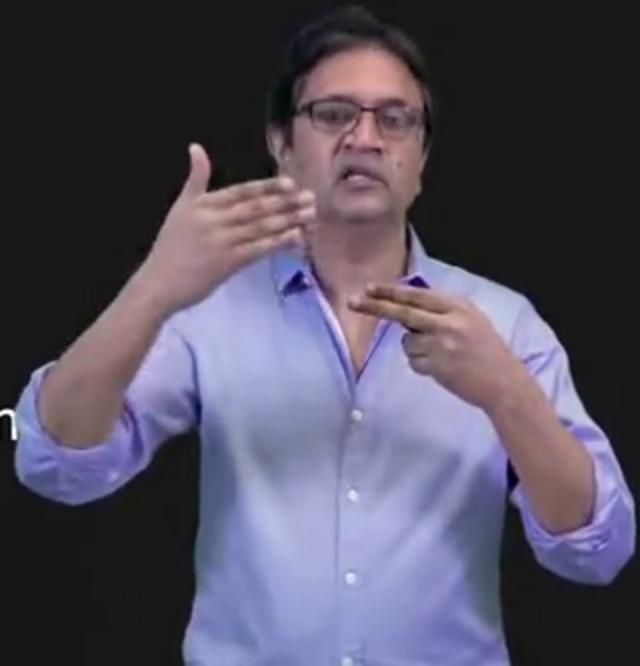
Optical Flow is used to determine the intermediate frames to produce slow-motion effect.



Video Retiming



Optical Flow is used to determine the intermediate frames to produce slow-motion effect.



Video Retiming



I.10



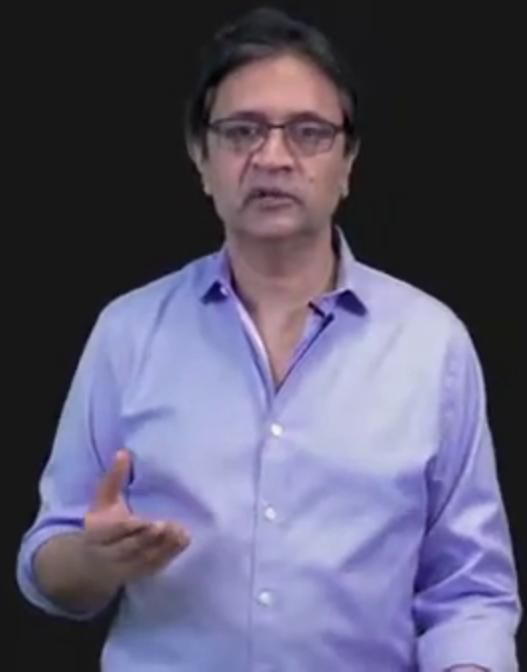
Optical Flow is used to determine the intermediate frames to produce slow-motion effect.

Image Stabilization



Captured Video

Optical Flow is used to remove camera shake.



[Liu 2014]

Image Stabilization



Captured Video

Optical Flow is used to remove camera shake.



Image Stabilization



Captured Video

Optical Flow is used to remove camera shake.



[Liu 2014]

Image Stabilization



Captured Video

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[Liu 2014]

Image Stabilization

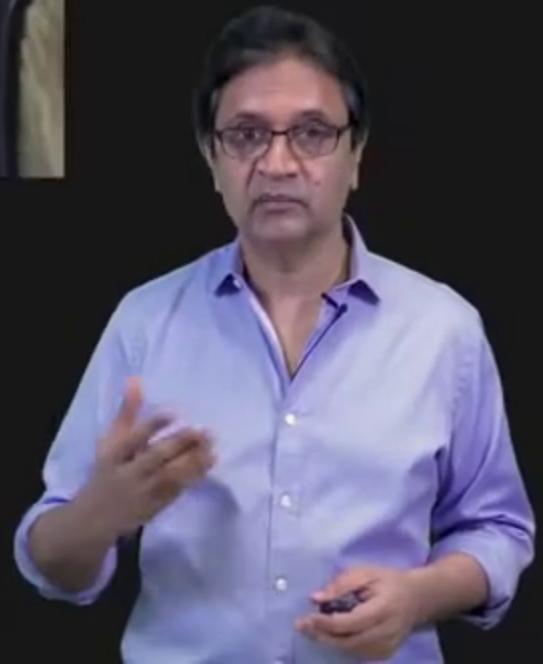


Captured Video

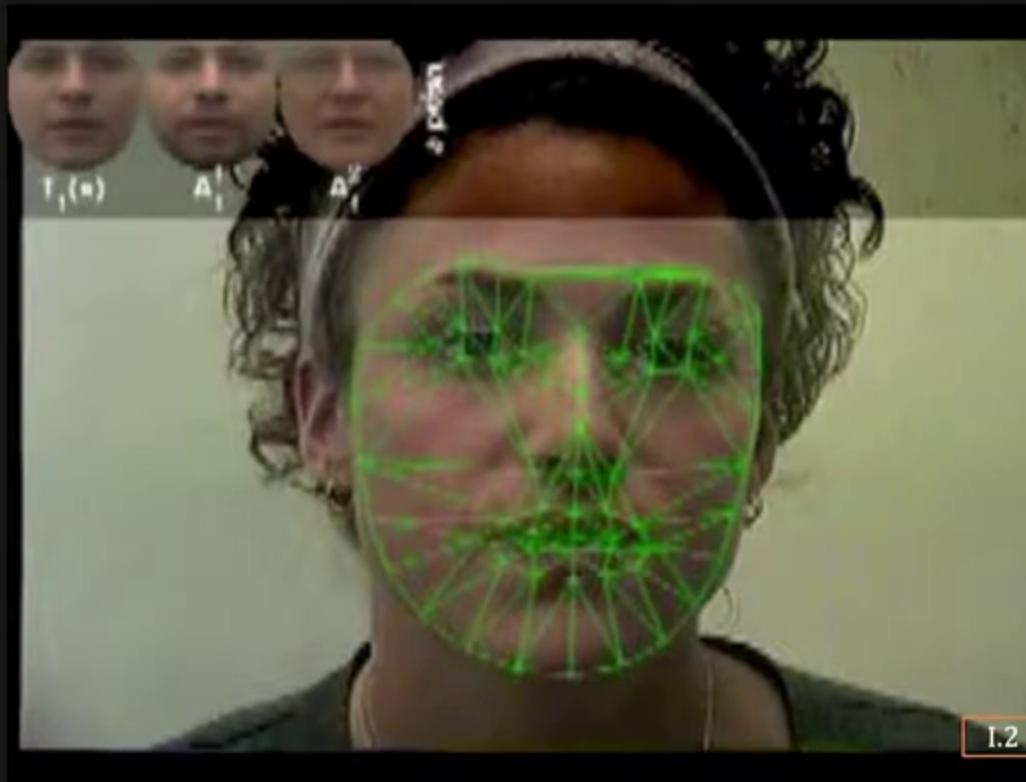


Stabilized Video

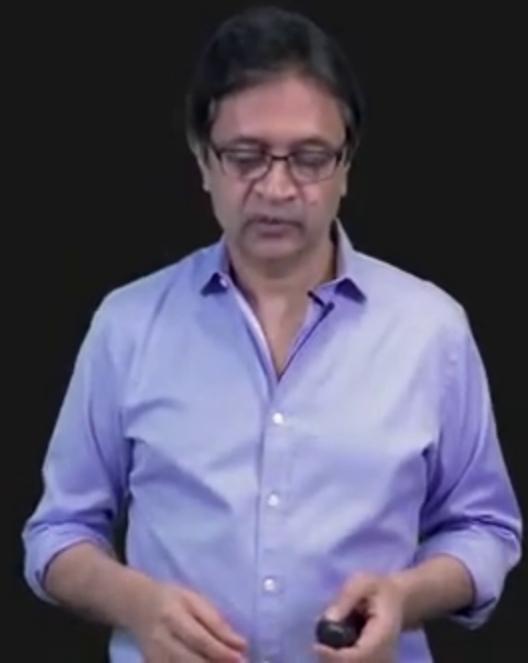
Optical Flow is used to remove camera shake.



Face Tracking



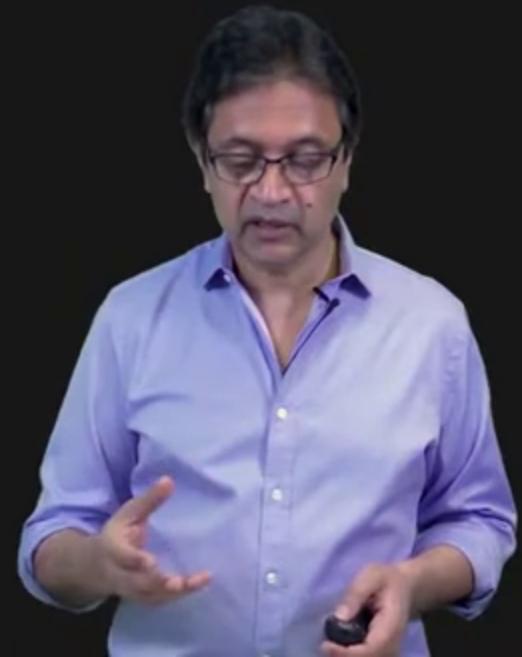
Tracking of Facial Features



Face Tracking



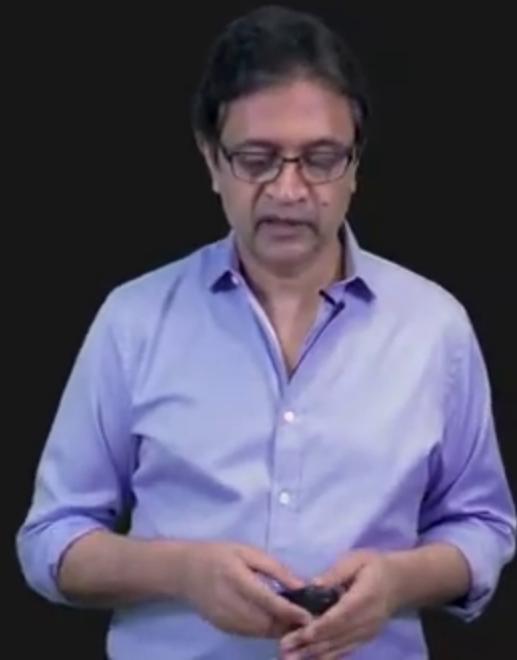
Tracking of Facial Features



Games



Flow Based Player Interaction



Games



Flow Based Player Interaction



Games



Flow Based Player Interaction



References and Credits

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