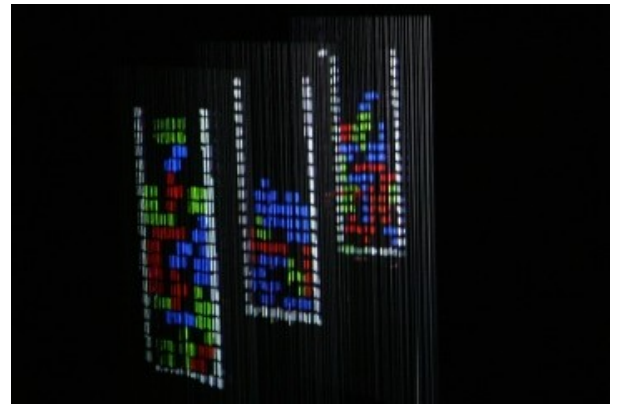


Taming the Complexity of Light Transport



Dr. Srinivasa Narasimhan

Underlying all of computer vision research is a model of how light interacts with a scene and then reaches a camera to form images. Light propagates through a scene in complex ways - inter-reflections between scene points, diffusion beneath the surface of translucent materials like skin and marble, and scattering through media like the atmosphere and murky water. Despite this complexity, the vision community has defined the brightness of a pixel in the image as solely due to the light reflected from a single point in the world. This characterization is correct only for convex opaque objects in vacuum! Modeling this wide variety of optical phenomena is crucial for effective scene understanding in all real-world environments. This talk will present computational imaging and illumination techniques to control and tame the complexity of light transport for many applications in computer vision, graphics and displays.

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Carlson Auditorium, Center for Imaging Science (Bldg. 76)