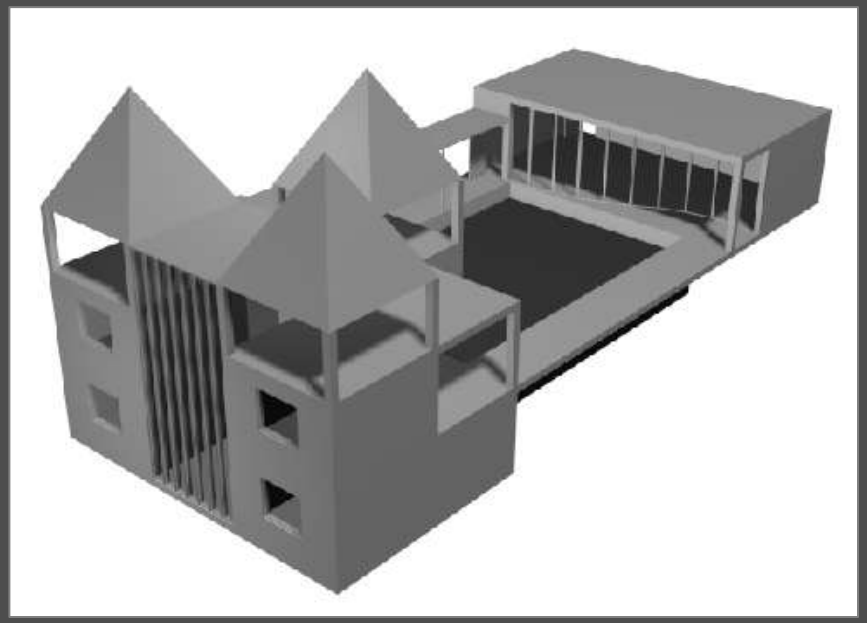
Non-Photorealistic Rendering

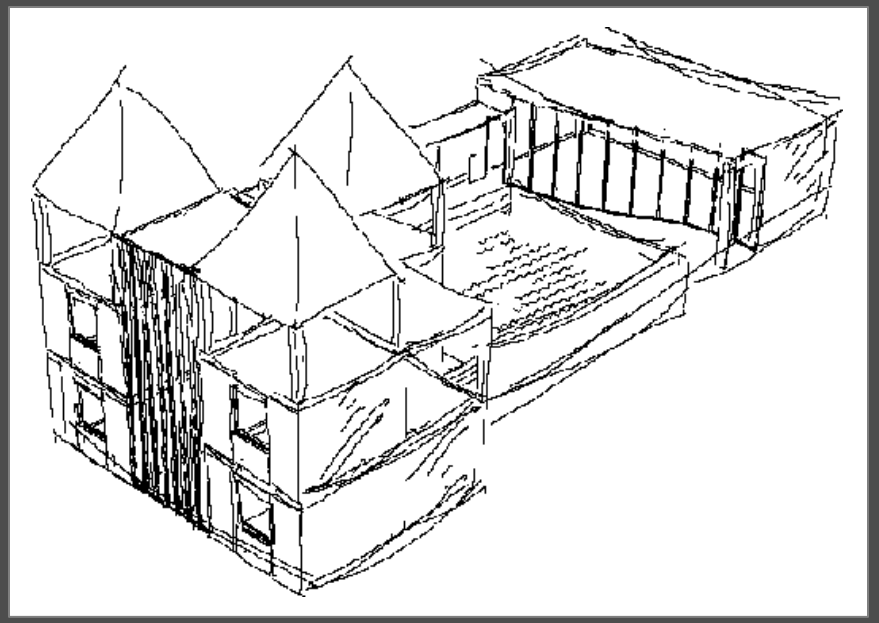
Applications for NPR

Tobias Isenberg

Why NPR in Practice? → Communication

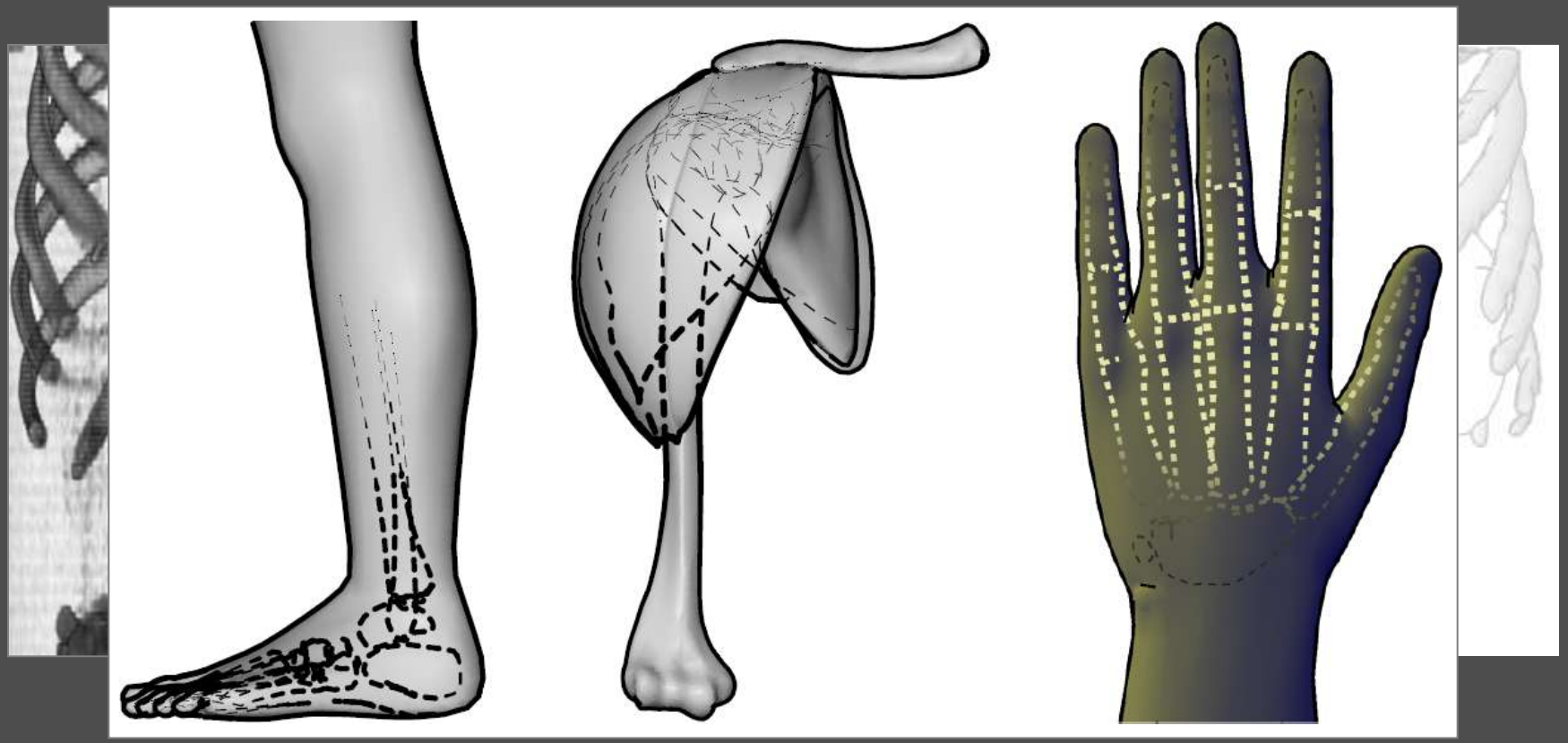
- conveying intentions or characteristics
  - intention to discuss designs
  - status as an idea, draft, or rough design





Why NPR in Practice? → Communication

- conveying information that is otherwise hidden
  - domain expertise made understandable for lay people
  - showing information that can otherwise not be seen

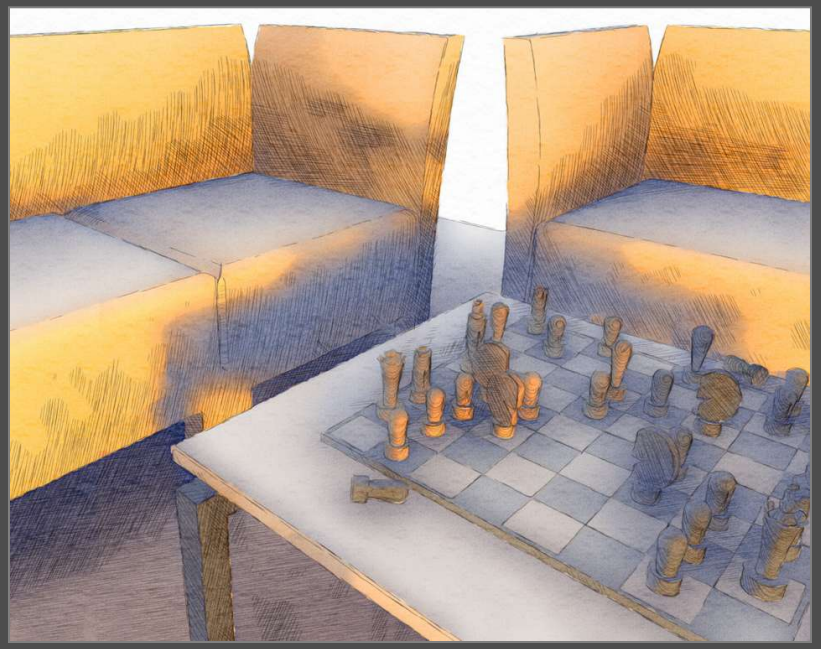


Why NPR in Practice? → Other Goals

- technically better suited (re: halftoning)
- illustration in domains where otherwise not feasible
- visualization of additional properties
- alternative form of depiction
- conveying a certain style of depiction
- artistic experimentation or expression
- just for fun
- …

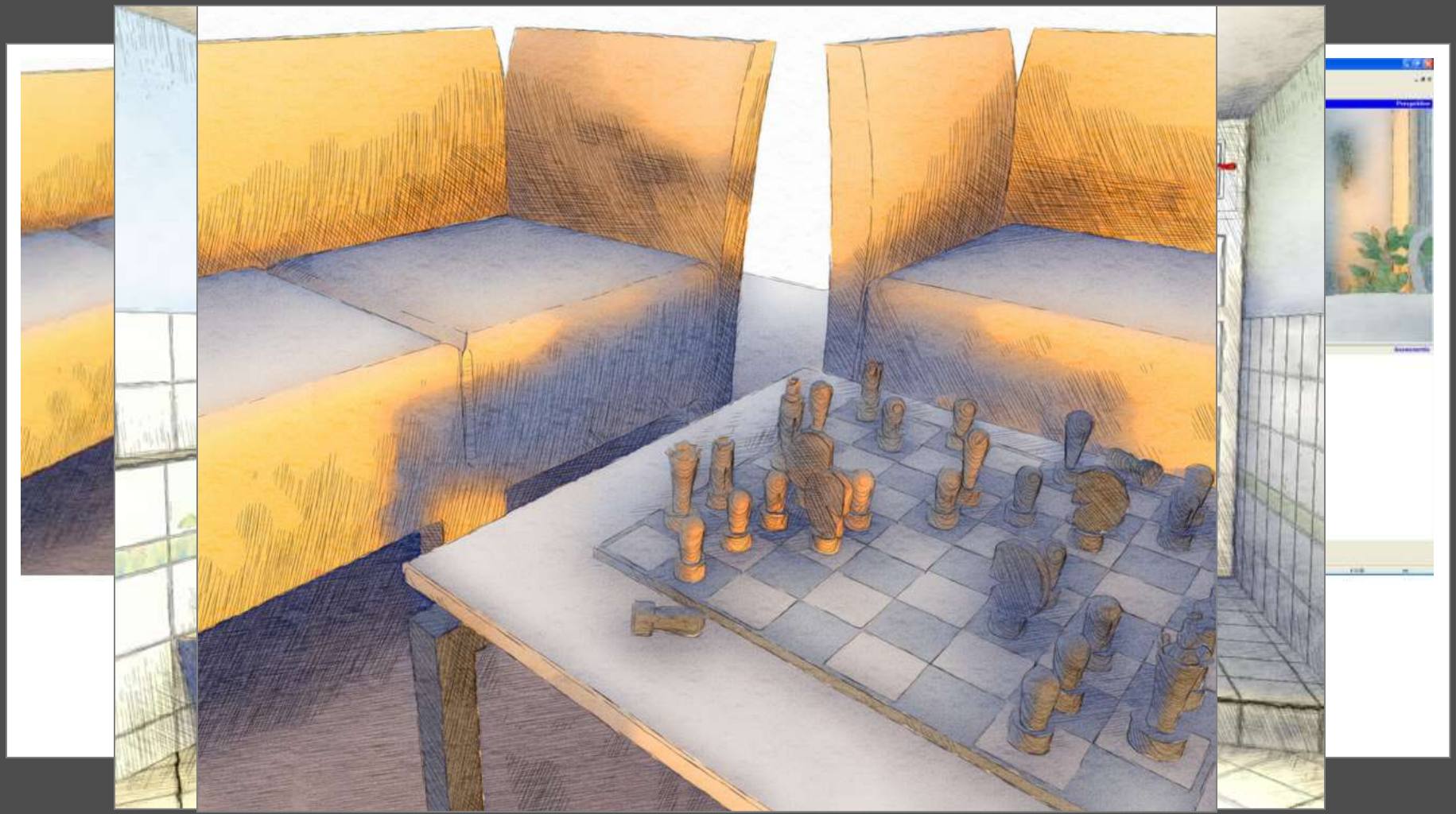
Applications for NPR

Selected Examples for Specific Application Domains



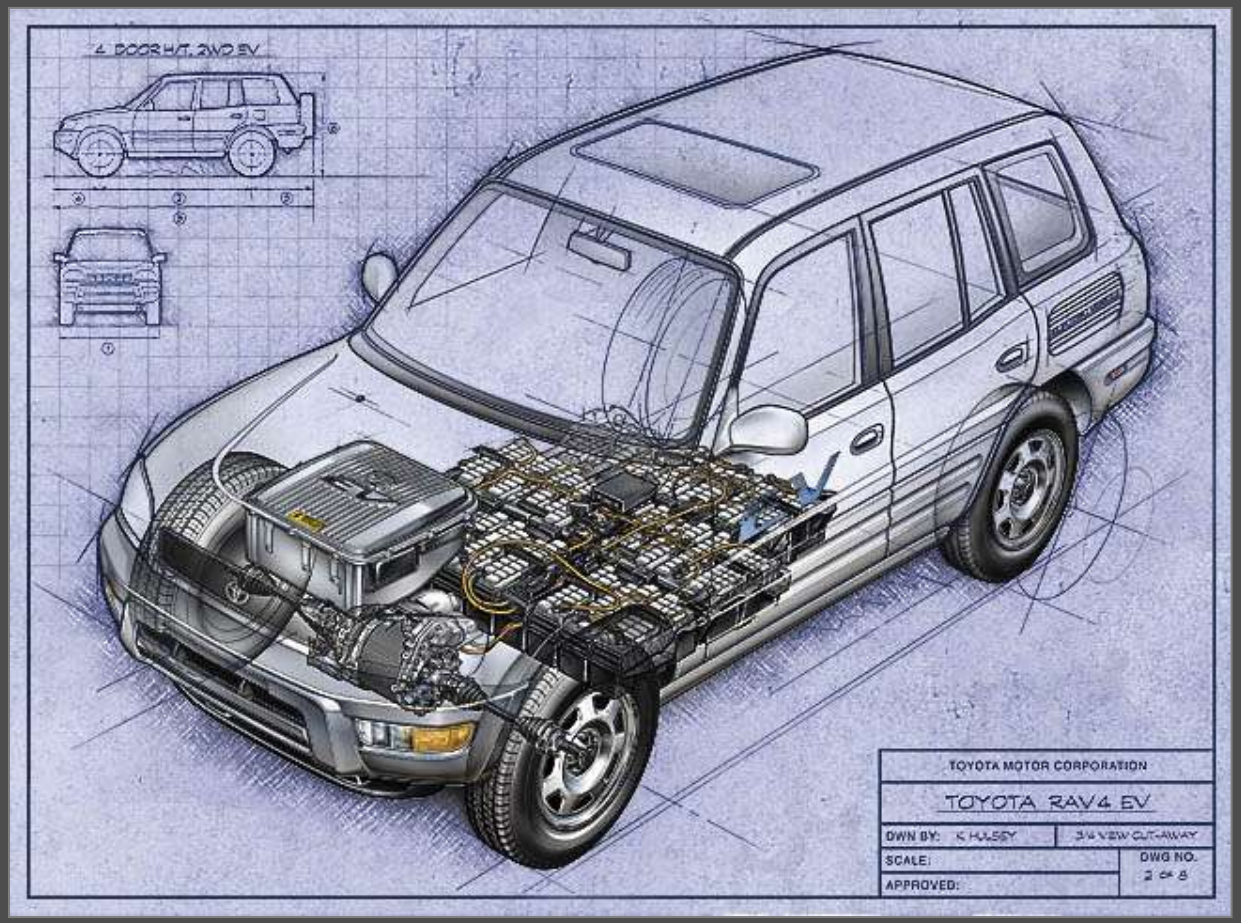
NPR in Architecture and Design

- NPR to support presentation of designs



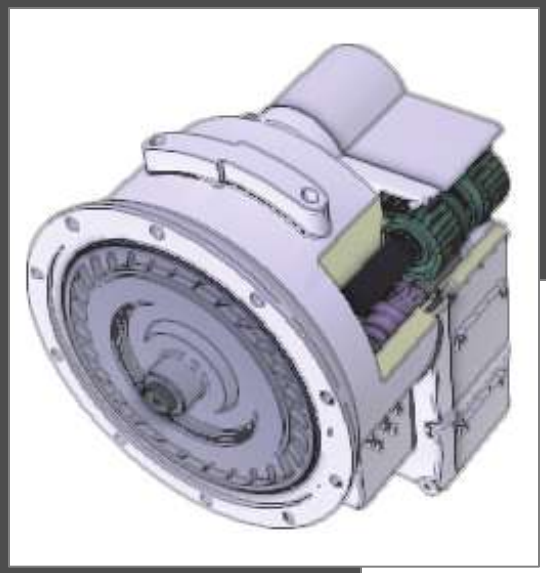
NPR to Generate Illustrations

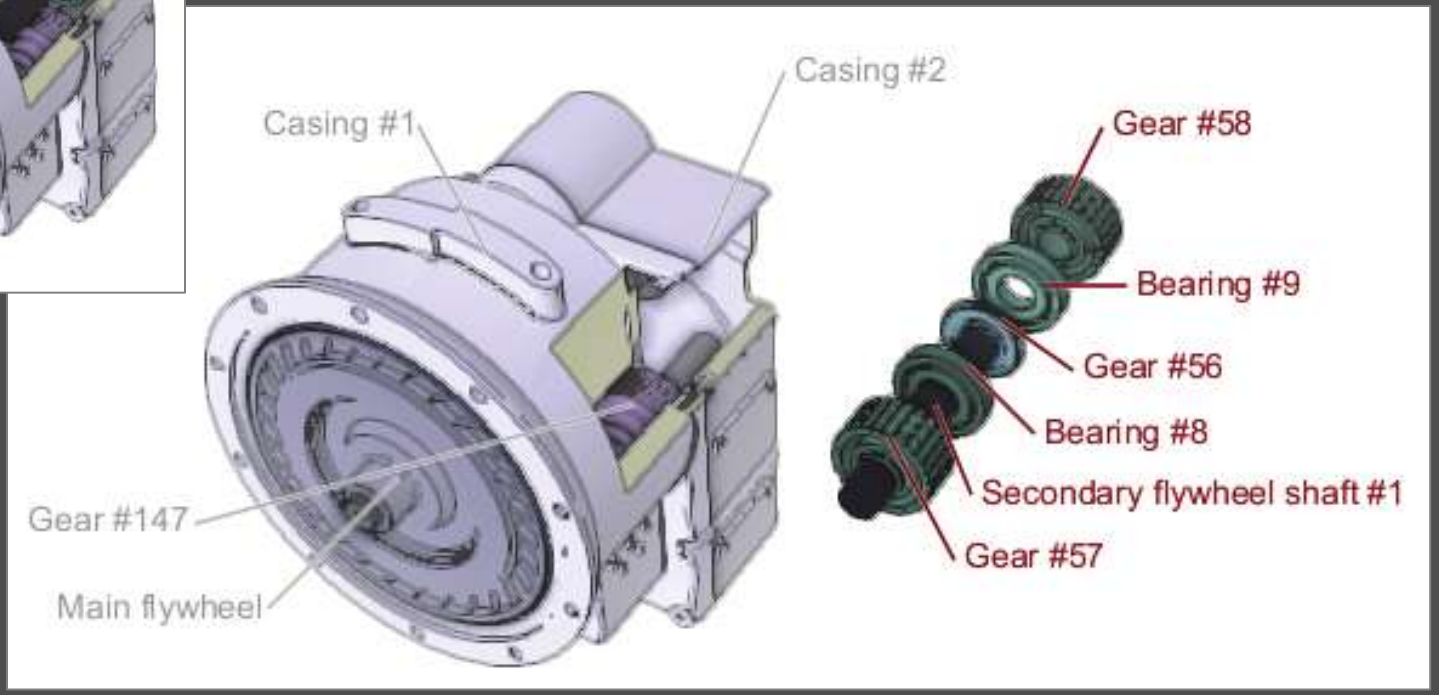
- illustration as a medium that is familiar
- e.g., examples of hand-made illustrations:



NPR to Generate Illustrations

- e.g., exploded views





NPR to Generate Illustrations

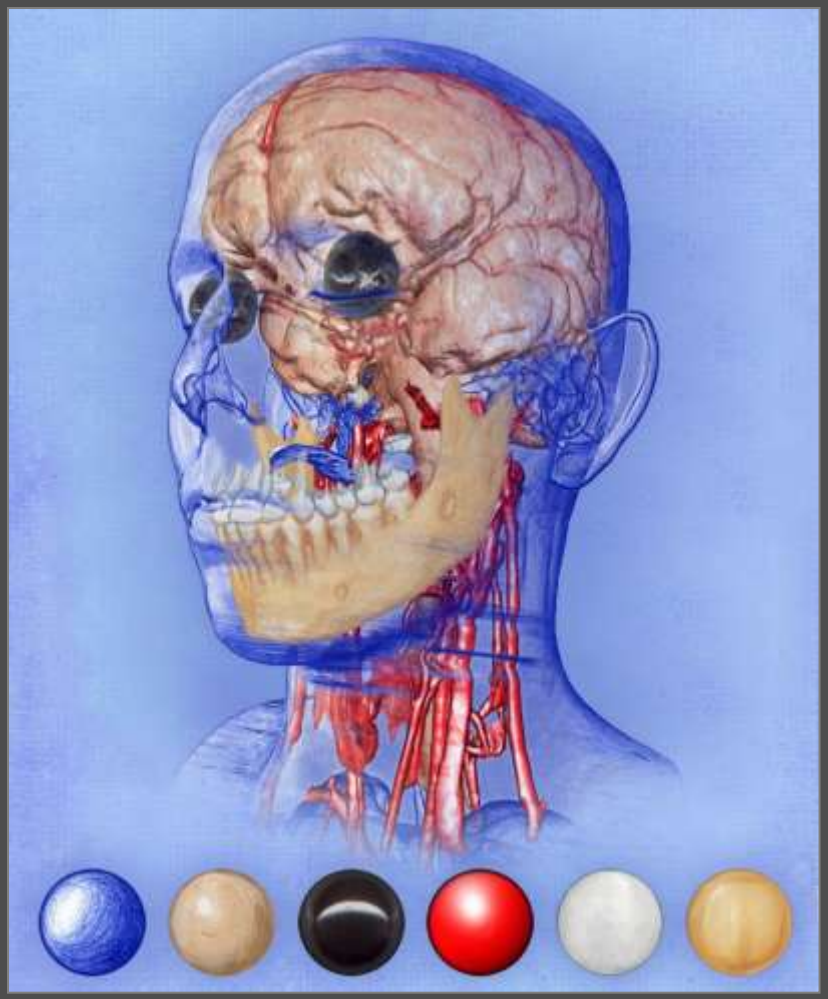
Automated Generation of Interactive 3D Exploded View Diagrams

Wilmot Li[1,3] Maneesh Agrawala[2] Brian Curless[1] David Salesin[1,3]

[1]University of Washington [2]University of California, Berkeley [3]Adobe Systems

NPR in Medical Illustration

- NPR to show layers of information



2 x Bruckner and Gröller, 2007

NPR in Medical Illustration

- illustration of tubular structures

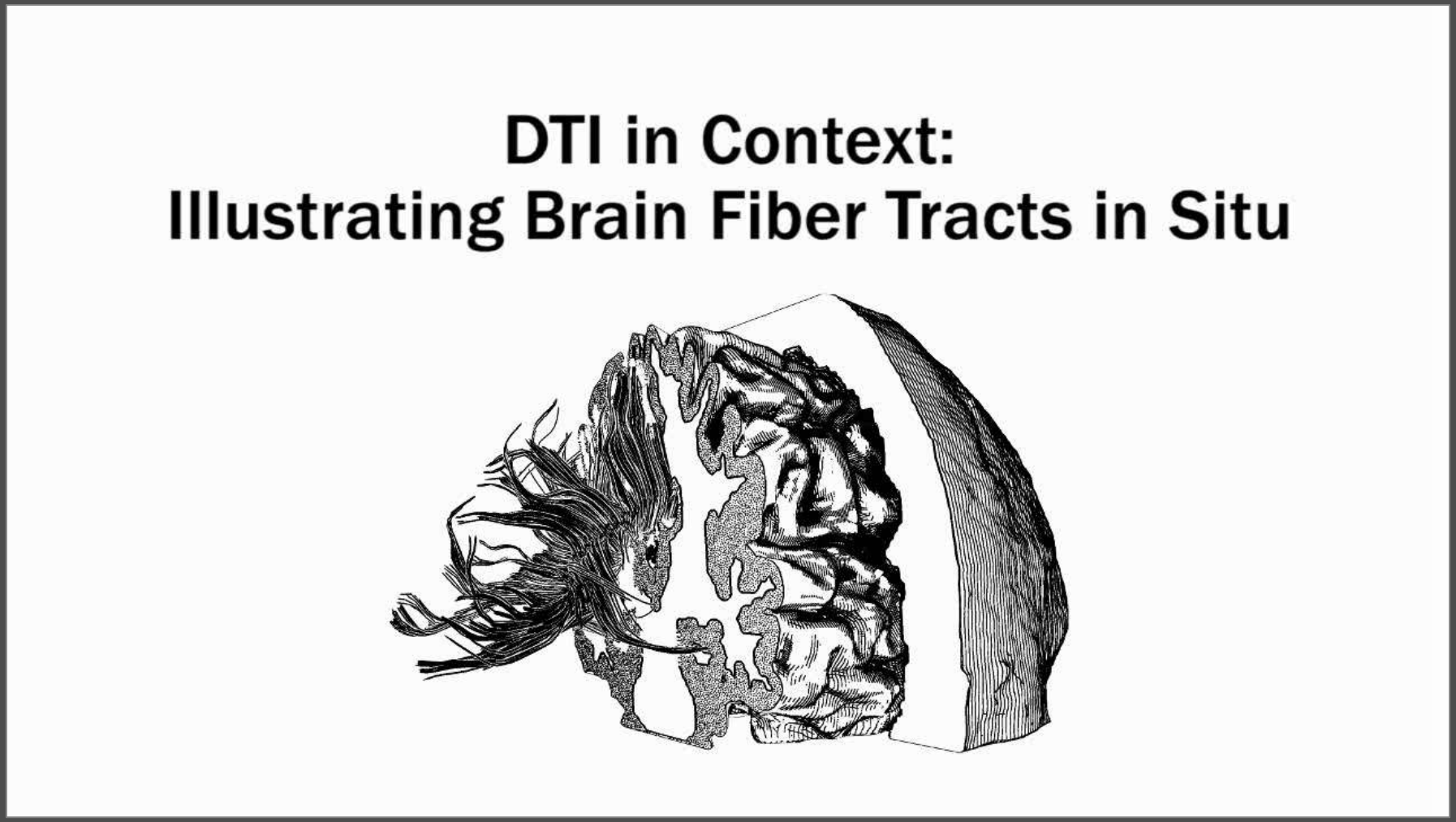
NPR in Medical Illustration

- use NPR principles of emphasis and abstraction

Depth-Dependent Halos:
Illustrative Rendering of Dense Line Data

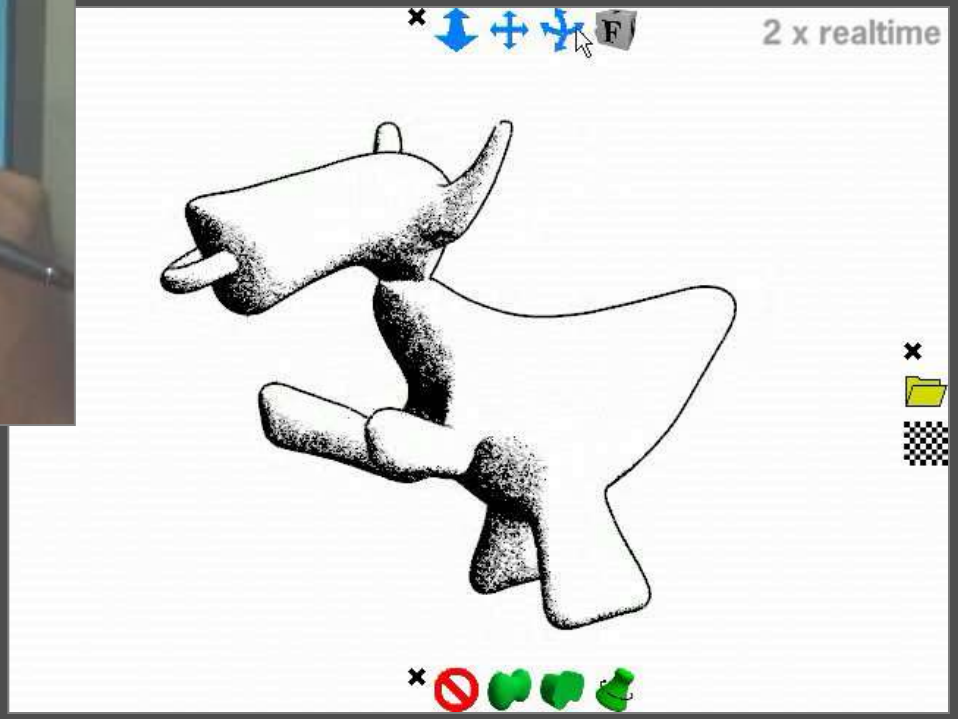
NPR in Medical Illustration

- use NPR principles of emphasis and abstraction



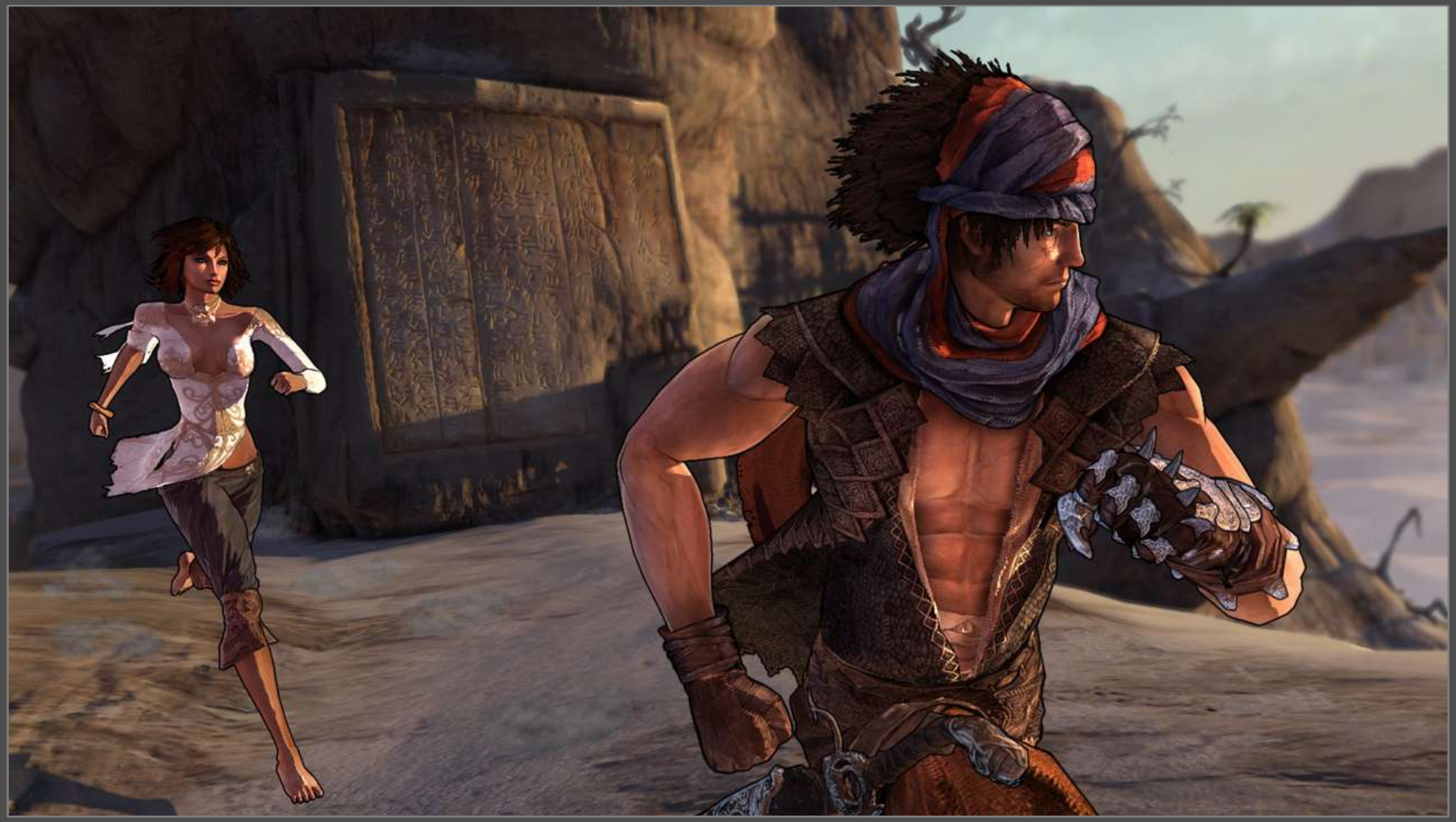
NPR in Sketch-Based Modeling

- as visual style in sketch-based modeling



NPR in Entertainment: Games

- NPR as a style in games, e.g., Prince of Persia



NPR in Entertainment: (Short) Movies

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NPR in Entertainment: (Short) Movies

Non-Photorealistic Rendering

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