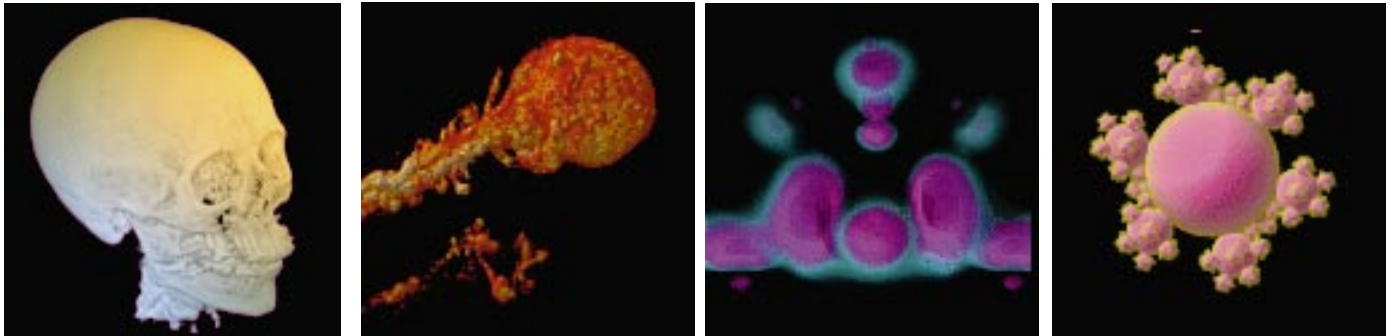


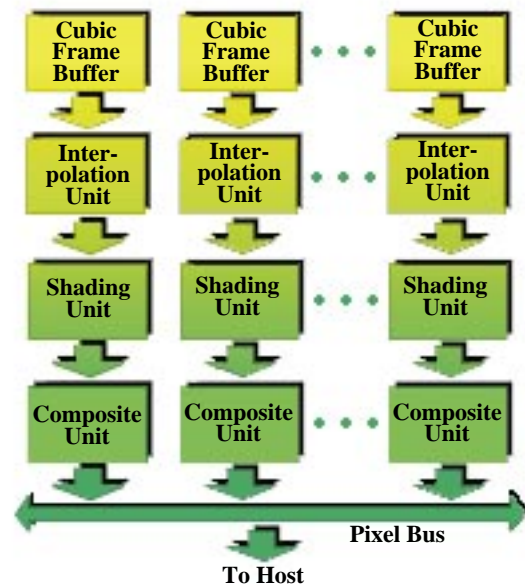
# Cube-4 : A Scalable Architecture for Real-Time Volume Rendering

State University of New York at Stony Brook



Cube-4 is a parallel and pipelined architecture offering:

- High image quality and flexibility (ray-casting algorithm)
- Arbitrary parallel and perspective projections
- Variety of projection modes
- Control of shading, segmentation, and cut planes
- Real-time visualization of static and dynamically changing data
- Simple and localized data and control flow
- Modular and easily expandable architecture
- No pre-processing or data dependent optimizations
- Very cost effective approach
- Performance only limited by memory access speed
- Wide range of possible hardware implementations:
  - EISA board for 30 frames/sec of  $256^3$  volumes
  - VME board for 30 frames/sec of  $512^3$  volumes
  - Multiple boards for 30 frames/sec of  $1024^3$  volumes



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