Stochastic Simplification

Rob Cook
John Halstead
Maxwell Planck
David Ryu
Vegetation on Disney/Pixar’s Cars
Rat Fur on Disney/Pixar’s Ratatouille
Back in June 2004...

Problem Discovery
Problem Discovery
Problem Discovery
Overview of Simplification
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Overview of Simplification
Pixar’s Cars Teaser

Problem Discovery
Overview of Simplification
Overview of Simplification
Solution Requirements

Automatic
Solution Requirements

Animate-able
Do you really need that much detail?
Do you really need that much detail?
Do you really need that much detail?
Stochastic “Pruning”
Area Preservation
Area Preservation
Area Preservation
Fattening Neighbors

Area Preservation
Contrast Compensation
Shading Compensation

Contrast Compensation
Shading Compensation

Contrast Compensation
Contrast Compensation
Contrast Compensation
Contrast Compensation
Contrast Compensation

We can do better than the renderer
Contrast Compensation
Contrast Compensation
Smooth Animation
Visual Results

Sagebrush Results
Time / Memory Savings

Sagebrush Results

Normalized Screensize

Memory

Time
Ratatouille
How about Hair?
Motion Blur Simplification
Motion Blur Simplification
Motion Blur Simplification
DOF Simplification
Random Pruning
Random Pruning
Stratified Pruning
Stratified Pruning
Stratified Pruning
Varying Detail
Results
Results
Conclusion

- Lots of complex procedural models
- Vegetation, Hair,
- Dirt, Explosions
- Hybrid approaches
Conclusion

- Lots of complex procedural models
- Vegetation, Hair,
- Dirt, Explosions
- Hybrid approaches
One more thing...

500 Million and Counting: Hair Rendering on "Ratatouille"
8:30 am
Room 6DE

Rivers of Rodents: An Animation-Centric Crowds Pipeline for "Ratatouille"
10:30 am
Room 6DE
Any Questions?