Future Studios Research Lab

The Boy and His Robot Film Case Study

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About MAGIC

- Established in Nanyang Technological University on 1 Nov 2012
- Cross-disciplinary R&D with 26 professors, 33 researchers, 11 PhDs
- To translate scientific ideas into technological products & services
- To increase capability of the Studios of the Future
- Supported by

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mda
Media Development Authority
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MAGIC
Multi-plAtform
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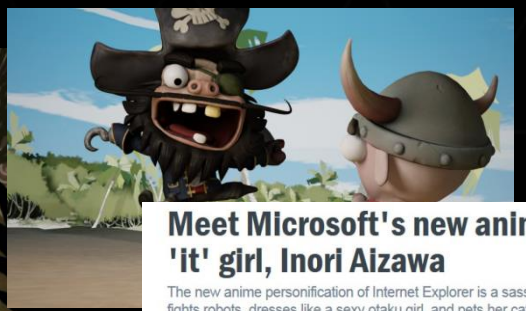
R&D in MAGIC

- Object Creation & Manipulation
- Animation Technology
- Cloud Gaming
- Game Design & Game Impact
- Serious Games



Future Studios Research Lab (FSR Lab)

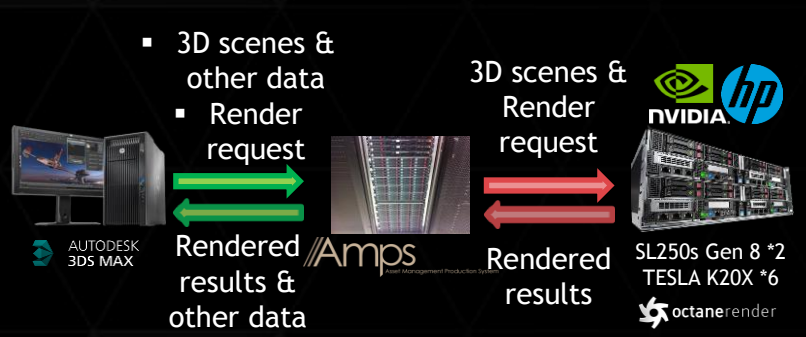
- Established in MAGIC on 21 Jan 2014
- To develop next generation of technological & process breakthroughs in Singapore's entertainment & media industry & beyond
- To further expand the realm of GPU related technologies
- To lower production cost, shorten time to market & enable cross-border execution

Asset Management & Production System (AMPS)

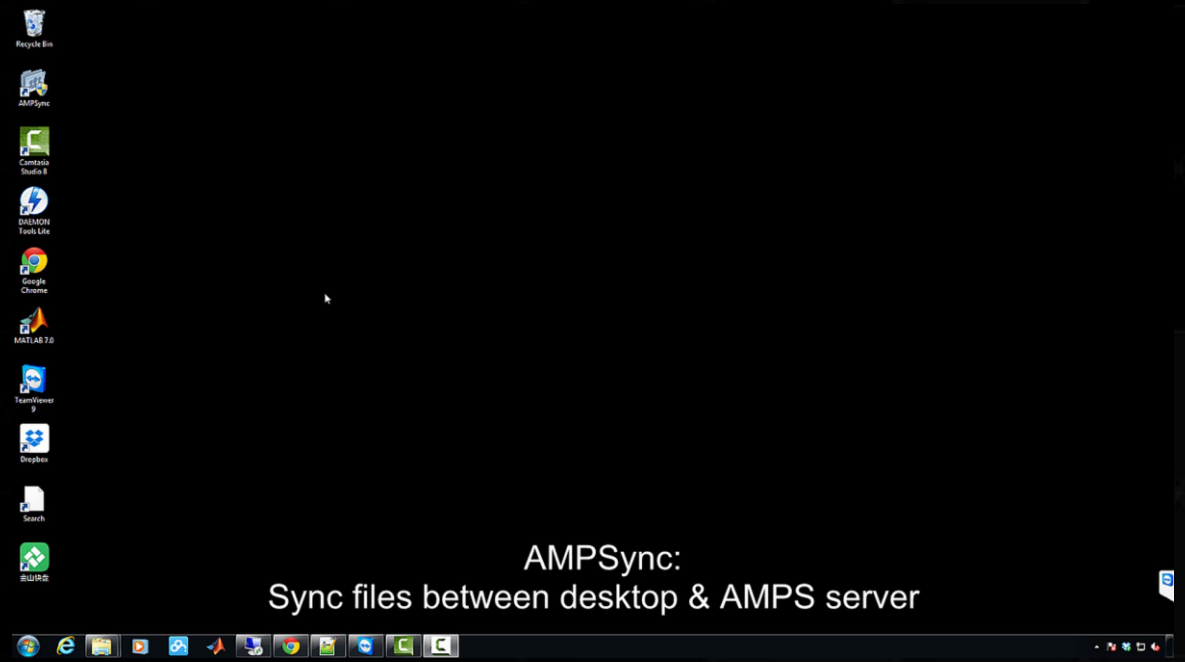
- Streamline resource management process and build a more efficient pipeline
- Enable archiving, retrieving, tracking, and interacting with assets of various media industries
  - Animation
  - Film
  - Gaming
  - Advertising
  - Education, etc.
- Access via multiple platforms without location constraint

Networked GPU Rendering Integrated with AMPS

- Accelerated rendering leveraging the power of GPUs
- Rendering requests and results managed directly in AMPS

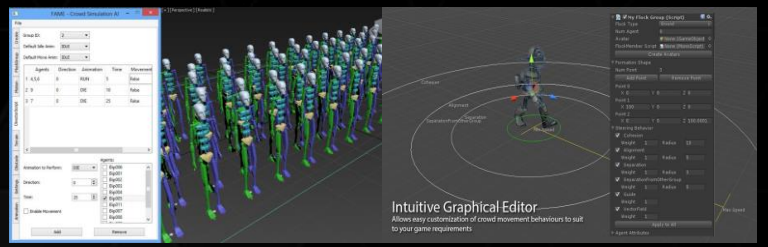


- Scaling up the infrastructure
  - 2 SL270s servers, 16 Tesla K40 GPUs
  - 3 DL380 servers, 6 Quadro K6000 GPUs



Artificial Intelligence Powered Crowd Simulation

- Flocking Animation and Modeling Environment (FAME)
- Simulate crowd motion & behavior with enhanced realism in games & films
- 3DS Max Plugin developed
- Crowd simulation API published in Unity Asset Store



3DS Max Plugin Unity Plugin

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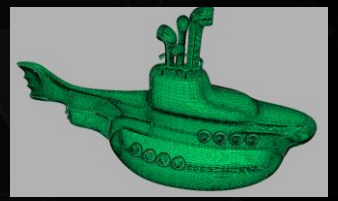
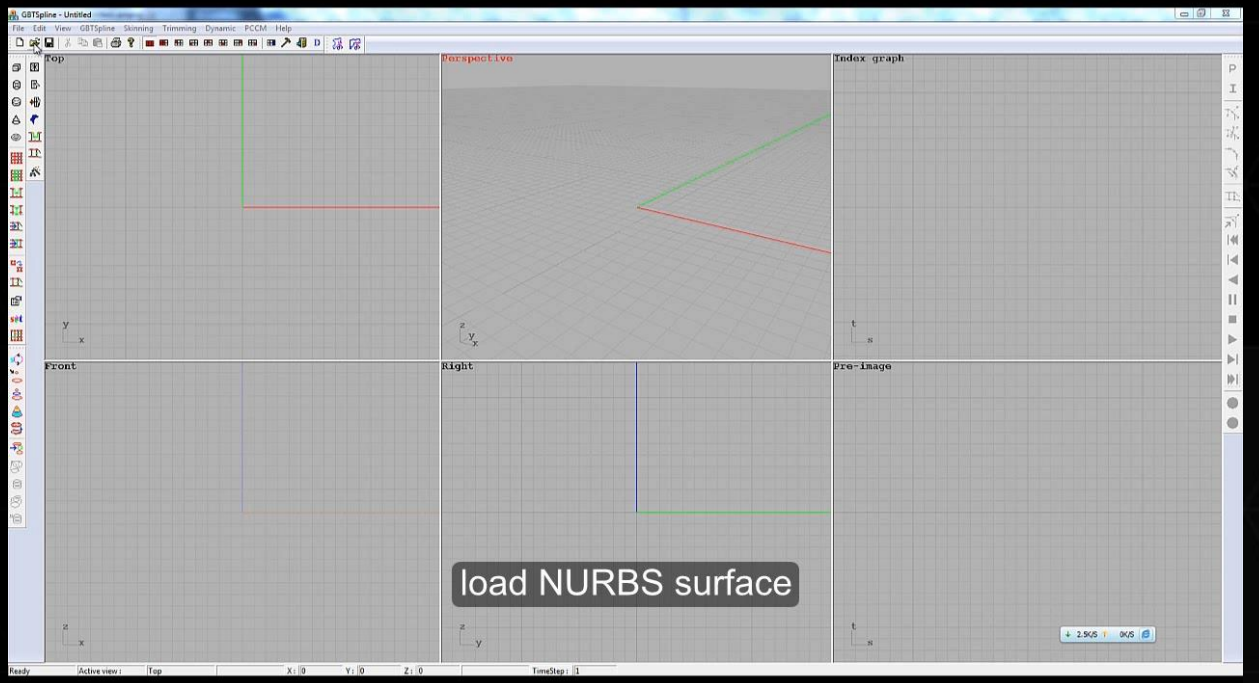
Subdivision Surface with GPU Speedup

- Address the challenge of larger & more complex geometry in production
- Handle multi-resolution smooth shapes with complicated topology
- Support level-of-detail rendering naturally
- Applied in games & animations for real-time, cost effective creation & modification of objects with GPU speedup





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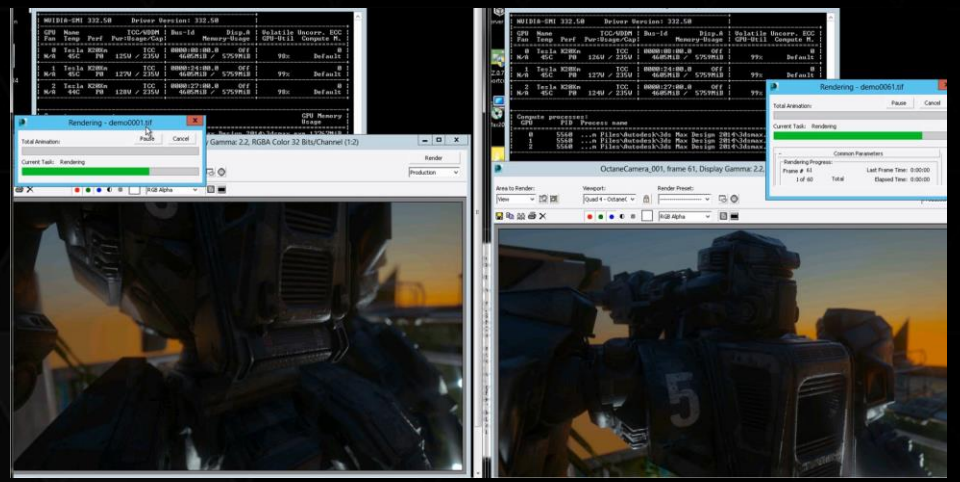
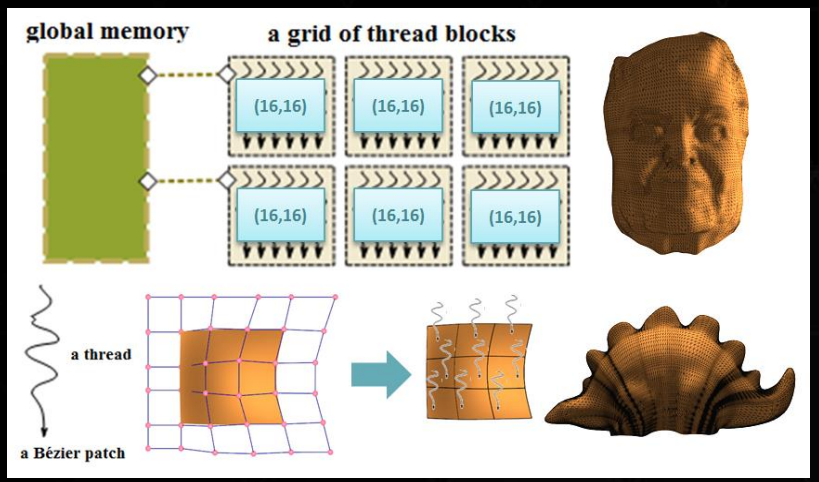
R&D Achievements

- 9 papers published, 7 products/services developed
- Two works presented in GPU Technology Conference 2014, San Jose
- GPU Renderfarm with Integrated Asset Management & Production System



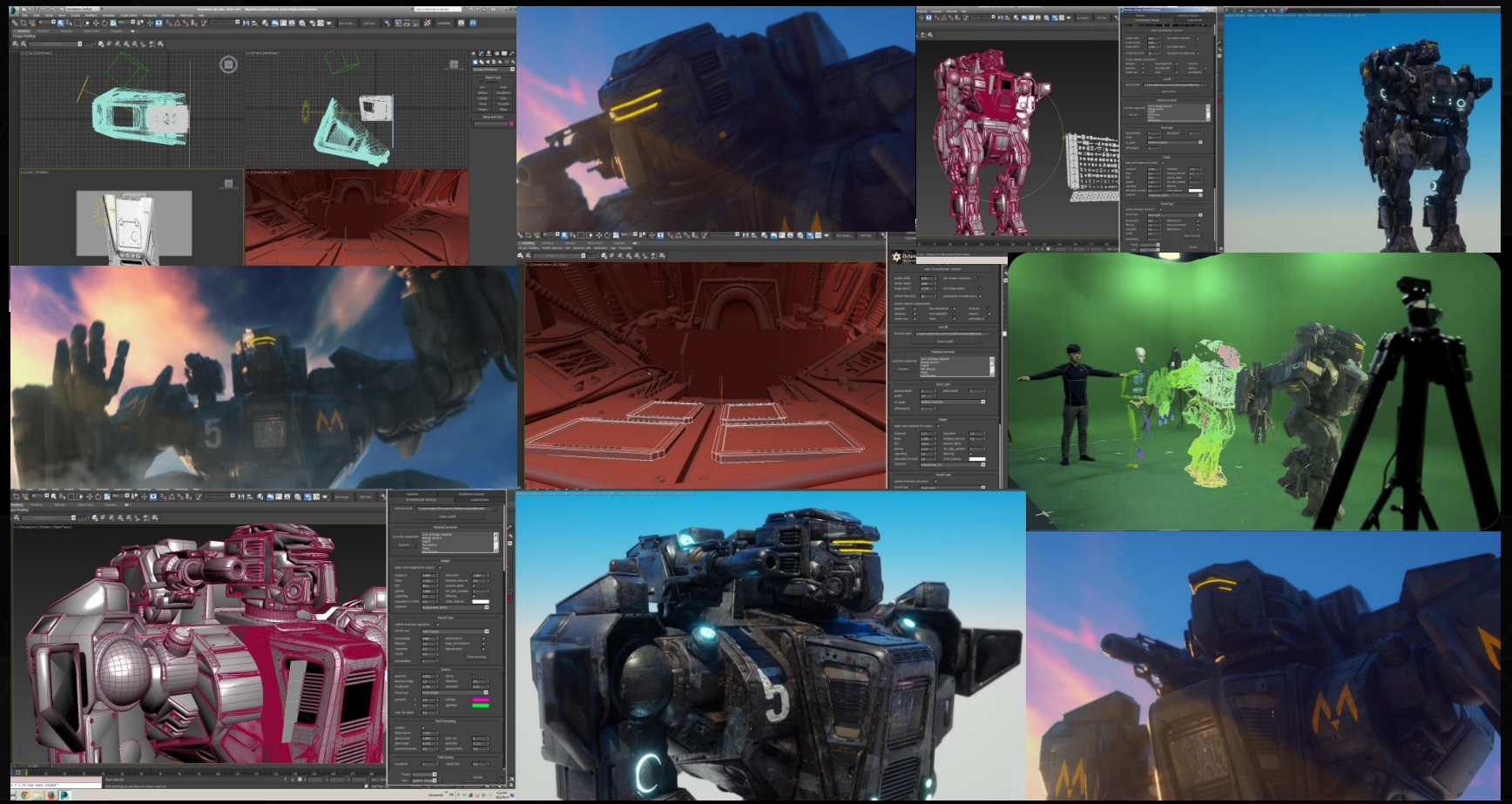
- Adaptive NURBS Tessellation on GPU



Industrial Case Study: *The Boy And His Robot*

- Validating innovative technologies by industrial application
  - Asset Management & Production System (AMPS): project management
  - Networked GPU Rendering Service: faster & high-quality rendering
  - Artificial Intelligence Powered Crowd Simulation: massive battle scenes
- Enabling small-scale studios to produce cutting edge productions powered by technologies
- Making Future Studios a reality

Industrial Case Study: *The Boy And His Robot*



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