Project 3 Theme Park

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_

ID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ID\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| Criterion | Target | Score | Comment |
| Upload   * Source code * Executable file * User manual * Tech document * 1.5~3minute introduction videos |  |  | If you did not finish this, you cannot get any score. |

* Check Point #1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (10)
* Check Point #2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (5)
* Final Demo score: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (238)
* Total: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Total = (Check Point #1 + Check Point #2 + Final Demo)
* The maximum number of points is 110.

Theme Park Final Demo (12/20)

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| **Train-related techniques** | | | |
| Criterion | Target | Score | Comment |
| Real Train Wheels | 1 |  |  |
| Simple Physics | 2 |  |  |
| Adaptive subdivision   * The level of detail in the subdivision is determined by the curvature of the curve. (2) * The level of detail in the subdivision is determined by the viewing distance. (2) | 4 |  |  |
| Improve the user interface of the frame work | 1 |  |  |
| Multiple tracks and trains   * The railroad tracks have junctions and switches, allowing you to choose the direction. (1) * Trains won't collide with each other. (1) | 2 |  |  |
| Approximating C2 curve | 2 |  |  |
| Sketch-based interface (1 ~ 5) | 5 |  |  |
| Have People on your Roller Coaster | 1 |  |  |
| Headlight | 1 |  |  |
| Smoke | 3 |  |  |
| Non-flat terrain   * Non-flat terrain * Altering the terrain with a brush (1) * Trains and rails do not penetrate the terrain (1) * When the slope becomes too steep, trestles are used for connection. (1) | 3 |  |  |
| Support Structure | 1 |  |  |
| Tunnels | 1 |  |  |
| Load obj model. (At least three models.) | 3 |  |  |
| Make totally over-the-top tracks   * Different kinds of cars. (1) * Multiple carriages. (1) * 3D rails (Instancing) (1) | 3 |  |  |

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| **Water surface-related techniques** | | | |
| Criterion | Target | Score | Comment |
| Wave equation (5) \_\_\_\_\_\_ | 5 |  |  |
| * Multi-passed scenic * Refraction (5) \_\_\_\_\_\_ * Reflection (5) \_\_\_\_\_\_ | 10 |  |  |
| Interactive Water Surfaces | 3 |  |  |
| Hack caustics effect | 3 |  |  |
| Photorealistic simulated caustics effect | 5 |  |  |
| Buoyancy and Floating Objects | 3 |  |  |
| Foam and Spray(1 ~ 5) | 5 |  |  |
| Dynamic Tessellation | 3 |  |  |

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| **Rendering techniques** | | | |
| Criterion | Target | Score | Comment |
| Texture mapping (3) \_\_\_\_\_\_\_ | 3 |  |  |
| Performance Tricks   * Level of Detail (3) \_\_\_\_ * Trick 1(1 ~ 5) \_\_\_\_ * Trick 2(1 ~ 5) \_\_\_\_ * Trick 3(1 ~ 5) \_\_\_\_ | 15 |  |  |
| Shadow Mapping   * Directional light and Spot light (2.5) \_\_\_\_ * Point light (2.5) \_\_\_\_ | 5 |  |  |
| Really cool shaders   * Shader 1(1 ~ 5) \_\_\_\_\_ * Shader 2(1 ~ 5) \_\_\_\_\_ * Shader 3(1 ~ 5) \_\_\_\_\_ * Shader 4(1 ~ 5) \_\_\_\_\_ | 15 |  | Grayscale(1)  Edge Detection(1)  Bump Mapping(3)  Anti-aliasing(3) |
| Hack rendering and performance tricks   * Local lights (1) \_\_\_\_\_ * Inter-object reflections (3) \_\_\_\_\_ * Trick 1(1 ~ 5)\_\_\_\_ * Trick 2(1 ~ 5)\_\_\_\_ * Trick 3(1 ~ 5)\_\_\_\_ | 15 |  |  |
| Non-photorealistic rendering   * NPR 1(1 ~ 5) \_\_\_\_ * NPR 2(1 ~ 5) \_\_\_\_ * NPR 3(1 ~ 5) \_\_\_\_ | 15 |  | Toon shading(1)  Pencil drawing(1~5) |
| Very Advanced Texturing   * Skybox (3) \_\_\_\_\_ * Billboard Object (3) \_\_\_\_\_ * Projector Textures (5) \_\_\_\_\_ * Environment Map (3) \_\_\_\_\_ * Texturing 1(1 ~ 5) \_\_\_\_ * Texturing 2(1 ~ 5) \_\_\_\_ | 15 |  |  |

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| **Modeling techniques** | | | |
| Criterion | Target | Score | Comment |
| Hierarchical Animated Model (1 ~ 5) \_\_\_\_\_\_\_ | 5 |  |  |
| Parametric Instancing (1 ~ 5) \_\_\_\_\_\_\_ | 5 |  |  |
| Sweep Objects (1 ~ 5) \_\_\_\_\_\_\_ | 5 |  |  |
| Subdivision (1 ~ 5) \_\_\_\_\_\_\_   * Sphere Subdivision (2) \_\_\_\_\_\_\_ | 5 |  |  |
| Other Modeling Methods   * Complex Procedural Model (3) \_\_\_\_\_\_ * Fractals (3) \_\_\_\_\_\_ * L-Systems (3) * Techniques 1(1 ~ 5) \_\_\_\_\_\_ * Techniques 2(1 ~ 5) \_\_\_\_\_\_ * Techniques 3(1 ~ 5) \_\_\_\_\_\_ | 15 |  |  |

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| **Animation Techniques** | | | |
| Criterion | Target | Score | Comment |
| Animation Techniques   * + - Particle system\_\_\_\_\_\_       * Technique 1 (2) \_\_\_\_\_\_       * Technique 2 (1) \_\_\_\_\_\_       * Technique 3 (1) \_\_\_\_\_\_     - Fake Physics Effects (1)     - Very Complex Behaviors (1)     - Complicated Animations (1)     - Techniques 1(1 ~ 2) \_\_\_\_\_\_     - Techniques 2(1 ~ 2) \_\_\_\_\_\_ | 10 |  |  |

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| **Other items** | | | |
| Criterion | Target | Score | Comment |
| Something cools   * Cool point 1(1 ~ 5) \_\_\_\_\_\_\_ * Cool point 2(1 ~ 5) \_\_\_\_\_\_\_ * Cool point 3(1 ~ 5) \_\_\_\_\_\_\_ * Cool point 4(1 ~ 5) \_\_\_\_\_\_\_ | 15 |  |  |
| Artistic Points   * Artistic point 1(1 ~ 5) \_\_\_\_\_\_\_ * Artistic point 2(1 ~ 5) \_\_\_\_\_\_\_ * Artistic point 3(1 ~ 5) \_\_\_\_\_\_\_ * Artistic point 4(1 ~ 5) \_\_\_\_\_\_\_ | 15 |  |  |
| Make it a game (1 ~ 10) \_\_\_\_\_\_\_ | 10 |  |  |