# Unity3d 基础特效教程-下雨

#### 一、前言

下雨特效也是最常见的特效之一吧,打雷下雨啥的都会被经常使用,可以去找参考视频, 毕竟只是一种模拟,所以只能尽可能的去做像,这里并不能完全的做的跟真实的一样,还请 谅解,本教程也是纯粹的使用 Unity3d 的粒子系统去制作。

#### 二、预览



## 三、制作过程

这个雨的特效可以说是三部分组成也可以说是四部分组成,因为其中有一部分就是那块板。那块板是不需要 render 组件的,为了让大家方便观察,我这边让它直接显示了。实际效果是这样的。



实际的组织结构是这样的:

| Create - Or All   |   | S 😪 🗸            | ZT_water_plane     |          |         |                 |         |            | Static 🔻   |
|---|---|------------------|--------------------|----------|---------|-----------------|---------|------------|------------|
| Main Camera<br>▼ 2T_water04<br>bowen<br>Trial<br>2T_water_plane<br>↓ ▲ Animation<br>↓ ▲ Anim | ✓ ➡ _Myziyuan ► ➡ _Animation  | Tag<br>Prefab    | Untagged<br>Select |          |         | Layer<br>Revert | Default | :<br>Apply |            |
|   | ► ■ _dabao<br>► ■ _Material<br>► ■ _Mesh  | V JL<br>Position | Transform          | ransform |         |                 |         |            | <b>e</b> , |
|   | ▼ ■ _prefab ▼ ■ _Mohuan ▶ ■ Chushengxiaoshi ▶ ■ Dance ▶ ■ Xuanran > ■ _Other > ■ _Other |                  |                    |          |         |                 |         | 30.72649   |            |
|   |   | Rotation         |                    |          |         |                 |         |            |            |
|   |   |                  |                    |          |         |                 |         |            |            |
|   |   |                  |                    |          |         |                 |         |            |            |
|   |   | X 0.8            |                    |          | 0.88877 |                 |         | 0.8887763  |            |

图中蓝色高亮的部分就是那块板,实际上它只要具备 Transform 属性即可。这块板子的唯一用途就是让雨水下落到地面产生碰撞产生水花的作用。这块板子模拟了地面。OK~ 介绍完这块板子,下面主要讲讲另外三部分构成的水的效果。

### 第一部分

首先来看主要的粒子系统,就是上图中的 ZT\_Water04,这个部分主要决定了整个水的 框架,呈现在你眼前的状态,就是一个下落的呈柱状的雨水。来看看第一不分段的参数设 置。

| Duration                  |                | 5.00     |          |                    |                 |              |       |
|---------------------------|----------------|----------|----------|--------------------|-----------------|--------------|-------|
| Looping                   |                | 1        |          |                    |                 |              |       |
| Prewarm                   |                |          |          |                    |                 |              |       |
| Start Delay               |                | 0        |          |                    |                 |              |       |
| Start Lifetime            |                | 10       | 3        |                    |                 |              |       |
| Start Speed               |                | 10       | 30       |                    |                 |              |       |
| Start Size                |                | 0        |          |                    |                 |              |       |
| Start Rotation            |                | 1        |          |                    |                 |              |       |
| Start Color               |                |          |          |                    |                 |              |       |
| Gravity Modifier          |                |          |          |                    |                 |              |       |
| Inherit Velocity          |                |          |          |                    |                 |              |       |
| Simulation Space          |                | World    |          |                    |                 |              |       |
| Play On Awake             |                | ~        |          |                    |                 |              |       |
| Max Particles             |                | 1000     |          |                    |                 |              |       |
| ✓ Emission                |                |          |          |                    |                 |              |       |
| Rate                      |                | 300      |          | *                  |                 |              |       |
|                           |                | Time     |          | Ŧ                  |                 |              |       |
|                           |                |          |          |                    |                 |              |       |
| Bursts                    |                | Time P.  | articles |                    |                 |              |       |
|                           |                |          | 0        |                    |                 |              |       |
| 🗸 Shape                   |                |          |          |                    |                 |              |       |
| Shape                     |                | Cone     |          |                    |                 |              |       |
| Angle                     |                | 0        |          |                    |                 |              |       |
| Radius                    |                | 2.26     |          |                    |                 |              |       |
| Velocity over Lifetime    |                |          |          | -                  |                 |              |       |
| Limit Velocity over Lifet | ime            |          |          | -                  |                 |              |       |
| ✔ Force over Lifetime     |                |          |          | ✓ Sub En           | nitters         |              |       |
| X -10                     | ΥO             | Z 10     |          | 1                  |                 |              |       |
| 10                        | 0              | -10      |          | Birth              | 🕆 Trial (Partic | :le System)  |       |
| Space                     |                | Local    |          | <sup>†</sup> Death | None (Darticle  | Sustem)      | o +   |
| Randomize                 |                | <b>v</b> |          | Deach              | Hone (Parciele  | a oyscemy    |       |
| Color over Lifetime       |                |          |          | Collision          | 🐨 bowen (Part   | icle System) | •     |
| Color by Speed            |                |          |          | Textur             | e Sheet Animat  | tion         |       |
| Size over Lifetime        |                |          |          | Textur             | e oneec Annia   | 1011         |       |
| Size by Speed             |                |          |          | ✓ Render           | er              |              |       |
| Rotation over Lifetime    |                |          |          | Decider M          | - 4             | n illian and |       |
| Rotation by Speed         |                |          |          | RenderM            | ode             | Billooaro    |       |
| ✔ Collision               |                |          |          | Material           |                 | 🗶 ZT_water04 | 4_1 ⊙ |
| Planes JuZT_water_pla     | ne (Transform) |          |          | Sort Mod           | a               | None         |       |
|                           |                |          |          | 0                  |                 | 0            |       |
| Dampen                    |                | 0.8      |          | Sorting Fi         | auge            |              |       |
| Bounce                    |                | 0.5      |          | Cast Sha           | dows            | V            |       |
| Lifetime Loss             |                | 0.15     |          | Receive            | hadows          | 7            |       |
| Min Kill Speed            |                |          |          | Receives           | nadows          |              |       |
| Visualization             |                | Solid    |          | Max Parti          | cle Size        | 0.5          |       |
| Scale Plane               |                | 0.50     |          |                    |                 |              |       |

上面设置有几个注意点,第一就是 Force over Lifetime,这个就决定了雨水的方向,另 一个比较重要的就是那个 Collision 的设置,在设置这个之前,首先要把那个板子创建好, 这就是为什么我一开始要说那个板子的原因了。在 Planes 里面选择那个板子即可,参数根 据实际情况去设置。OK!下面一个重要的就是 Sub Emitters 的设置,需要在 Birth 和 Collision 里设置,Birth 决定了水的具体状态,而 Collision 很明显是决定了溅起的水花的具 体形态。

## 第二部分

主心骨设置完成,下面就要设置 Birth 的参数了。来看看具体参数设置。

| 🔻 😯 🛛 Particle Sy      | stem              | 1                                       | ¢, |
|------------------------|-------------------|---|----|
|                        | Ope               |   |    |
| Trial                  |                   |   |    |
| Duration               | 1.00              |   |    |
| Looping                | ~                 |   |    |
| Prewarm                |                   |   |    |
| Start Delay            |                   |   |    |
| Start Lifetime         | 0.3               | 0.5                                     |    |
| Start Speed            |                   |   |    |
| Start Size             | 0.15              | 0.1                                     |    |
| Start Rotation         |                   | 9999                                    |    |
|                        |                   | ~~~~~                                   | ۲  |
|                        |                   |   |    |
| Gravity Modifier       | 0                 |   |    |
| Inherit Velocity       |                   |   |    |
| Simulation Space       | World             |   |    |
| May On Awake           | •                 |   |    |
| Max Particles          | 1000              |   |    |
| ✓ Emission             |                   |   |    |
| Rate                   | 3                 |   |    |
| of narticles emitted n | Time<br>er second | (Time)                                  |    |
| ce unit (Distance)     |                   | ( ( i i i i i i i i i i i i i i i i i i |    |
|                        |                   |   |    |
|                        |                   |   | Ð  |
| Shape                  |                   |   |    |
| Velocity over Lifetin  | ne                |   |    |
| Limit Velocity over    | Lifetime          |   |    |
| ✓ Force over Lifetime  |                   |   |    |
| X 25 V 10              |                   | 25                                      |    |
| -25 -10                |                   | -25                                     |    |
| Space                  | World             |   |    |
| Randomize              | ~                 |   |    |
| 📃 Color over Lifetime  |                   |   |    |
| Color by Speed         |                   |   |    |
| ✓ Size over Lifetime   |                   |   |    |
|                        |                   |   |    |
|                        |                   |   |    |
|                        |                   |   |    |
|                        |                   |   |    |
|                        |                   |   |    |
|                        |                   |   |    |
|                        |                   |   |    |
| ✓ Renderer             |                   |   |    |

这里的 Force over Lifetime 主要决定的水在运动过程中受到的力,因为雨在下落过程中 会受到各种力的影响,首先是重力,然后还有各种阻力,主要是受到风的影响。 这里的 Render 属性要单独说下。

| 🗸 Renderer        |                     |          |
|-------------------|---------------------|----------|
| Render Mode       | Stretched Billboard |          |
| Camera Scale      | 0                   |          |
| Speed Scale       | 0.15                |          |
| Length Scale      | 0                   |          |
| Material          | ZT_water04_2        |          |
| Sort Mode         | None                |          |
| Sorting Fudge     | 0                   |          |
| Cast Shadows      | ~                   |          |
| Receive Shadows   | ✓                   |          |
| Max Particle Size | 0.5                 |          |
|                   | 🗸 Resimulate 🥅 W    | ireframe |

这里的渲染模式(Render Mode)为拉伸,因为雨水在远处看都是呈现线状的。所以这 里要使用拉伸属性。

## 第三部分

水的拖尾完成,下面就可以设置溅起的水花啦。上图:

| bowen  |                      |            |
|--|----------------------|------------|
| Duration   | 5.00                 |            |
| Looping  | ~                    |            |
| Prewarm  |                      |            |
| Start Delay  |                      |            |
| Start Lifetime   | 0.5                  | ۳.         |
| Start Speed  | 0.5                  | <b>T</b> : |
| Start Size   | 1 2                  | ۳.         |
| Start Rotation   | 0 9999               | . *        |
| Start Color  |                      | 1          |
| Gravity Modifier   |                      |            |
| Inherit Velocity   |                      |            |
| Simulation Space   | World                | ۳          |
| Play On Awake  | ~                    |            |
| Max Particles  | 1000                 |            |
| ✓ Emission   |                      |            |
| Rate   | 0                    | Ť          |
|  | Time                 |            |
|  |                      | 16         |
| Bursts   | Time Particles       |            |
|  | 0.00 2 🗖             |            |
|  | 0                    |            |
| ✔ Shape  |                      |            |
| Shape  | Sphere               | ٣          |
| Radius   | 0.01                 |            |
| e a concela ll   |                      |            |
| Emit from Shell  |                      |            |
| Random Direction   |                      |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime  |                      | _          |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Limit Velocity over Lifetime  | 8                    |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Limit Velocity over Lifetime<br>Force over Lifetime   |                      |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Limit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime  |                      |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Limit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime  |                      |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Limit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime<br>Color   |                      | ŀ          |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Limit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime<br>Color by Speed<br>Size over Lifetime  |                      |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Limit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime<br>Color by Speed<br>Size over Lifetime<br>Size  |                      | •          |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Force over Lifetime<br>Volor over Lifetime<br>Color<br>Color by Speed<br>Size over Lifetime<br>Size   |                      | •          |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime<br>Color by Speed<br>Size<br>Size by Speed<br>Rotation over Lifetime   |                      | •          |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Eimit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime<br>Color by Speed<br>Size<br>Size by Speed<br>Rotation over Lifetime<br>Rotation by Speed  |                      |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Emit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime<br>Color by Speed<br>Size<br>Size by Speed<br>Rotation over Lifetime<br>Rotation by Speed<br>Collision  |                      |            |
| Emit from Snell Random Direction Velocity over Lifetime Emit Velocity over Lifetime Golor over Lifetime Color Color by Speed Size over Lifetime Size Size by Speed Rotation over Lifetime Rotation by Speed Collision Sub Emitters   |                      |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Emit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime<br>Color by Speed<br>Size over Lifetime<br>Size<br>Size by Speed<br>Rotation over Lifetime<br>Rotation by Speed<br>Collision<br>Sub Emitters<br>Texture Sheet Animation               |                      | •          |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Emit Velocity over Lifetime<br>Force over Lifetime<br>Color over Lifetime<br>Color by Speed<br>Size over Lifetime<br>Size<br>Size by Speed<br>Rotation over Lifetime<br>Rotation by Speed<br>Collision<br>Sub Emitters<br>Texture Sheet Animation<br>V Renderer |                      |            |
| Emit trom Snell Random Direction Velocity over Lifetime Force over Lifetime Color Color by Speed Size over Lifetime Size Size by Speed Rotation over Lifetime Rotation over Lifetime Collision Sub Emitters Texture Sheet Animation Renderer Renderer Renderet Mode  | Horizontal Billboard |            |
| Emit from Snell<br>Random Direction<br>Velocity over Lifetime<br>Force over Lifetime<br>Color<br>Color by Speed<br>Size<br>Size by Speed<br>Rotation over Lifetime<br>Rotation over Lifetime<br>Rotation by Speed<br>Collision<br>Sub Emitters<br>Texture Sheet Animation<br>Vender Mode<br>Rotation                             | Horizontal Billboard |            |

波纹是出现很快就消失的,所以生命值很低,尺寸是从小到大变化。这些都毫无疑问,颜色从无到有,最重要的是 render 的模式要搞成平面的,因为这些东西几乎都是在那个板子上出现。最重要的贴图了,据我了解 Unity 自带的 Demo(AngryBots)里好像有现成的水花那种波纹的序列帧。如果实在没有也可以自己画,大概的差不多就行。

OK,说到这这个效果基本上就完成啦,可以点击播放键看看效果。

# 总结

这个水的效果制作比较容易,而且效果也不错,简单快速的做雨的特效还是不错的,如 果要做雷雨天气只要在上面加上乌云,和闪电即可,以后的教程中应该会放出闪电的特效。 不过也不要太期待了,因为作者就是个坑!哈哈哈!

AL PHA

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