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Axis Unreal Live Link Plugin 使用手册

1. 插件简介

Axis Studio不仅可以导出动补数据还可以输出实时动补数据到第三方应用来驱动动画角色

Axis studio作为网络中的服务端向客户端电脑上的应用发送动补数据,本文主要是关于如何在虚幻引擎 4中使用 NeuronLiveLink 插件进行驱动动补数据

1.1 插件特点

- 支持虚幻引擎版本4.25 4.26
- 支持接收和处理道具 (PWR跟踪道具)动作捕捉数据 (参考我们的VPS工程)
- 支持驱动不是使用T-Pose作为基准姿态(比如使用A-Pose)的模型
- 支持接收和处理Axis Studio发送的带有位移的数据
- 更新机器人动画

1.2 已知问题

• 运行打包版本可能会引发错误

1.3 关于

- 1. 支持开发平台: Win64
- 2. 支持虚幻引擎版本: 4.25 4.26
- 3. 文中的图片是基于英文版本的截图,中文版本不再使用新的截图而是在拥吻截图基础上进行简单说 明



- 1. 在虚幻引擎工程目录创建Plugins文件夹(如果文件夹不存在的化)
- 2. 解压NeuronLiveLink 插件压缩包到Plugins目录

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Config		
Content	LiveLinkTest4	24 1 > Plugins
Intermediate		^
Plugins		Name
Saved Create a folder and name it as	Plugins	NeuronLiveLink424_9e272b6
O NeuronLiveLink.uproject		
	2	add NeuronLiveLink to Plugins folder

图片注释说明:

- 1. 创建Plugins目录
- 2. 添加NeuronLiveLink插件目录 (加压缩) 到Plugins目录

3. 虚幻引擎4工程设置

1. 打开你的工程, 在编辑菜单下选择插件菜单项

File	Edit	Window Help	
*	History	,	
	ſ	Undo (Can't undo after: Loading map: PackageBP.umap)	
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Volur	1	Plugins	

图片中英文翻译: Edit -> 编辑 Plugins -> 插件

2. 在Animation部分, 启用Live Link插件(勾选插件的已启用选择框).

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🖬 Audio	(14)		Framework for animation driven by user controls.		
🔁 Augmented Reality	(6)				
E Automation	(2)				
📰 Blueprints	(6)		Enabled		Epic Games, Inc.
E Compositing	(3)		Live Link		Version 2.0
🖬 Database	(4)		Allows streaming of animated data into UE4		Version 2.0
📰 Developer	(2)				
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Examples	(3)		enabled		Epic Games, Inc.
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在已安装部分,启用NeuronLiveLink 插件并重启虚幻编辑器

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W All	(331)		NeuronLiveLink NEW!	
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3. 在内容浏览器, 在视图选项中勾选显示插件内容。



上述操作会启用Live Link插件,这个插件可以用于连接外部数字内容制作(DCC)工具。为使你的数字内容制作工具连接到UE4,你需要启用上述Live Link插件,在这部分我们会建立UE4和Axis Studio的连接。

4. 快速开始

4.1 打开Axis Studio并回放文件

下述操作步骤基于Axis Studio2.4.11579.1201, 对于其他版本的操作过程大体相似,这里不再赘述,请参考相关版本的Axis Studio手册查找详细操作步骤。

About	×
Axis Studio Version: 2.4.11579.1201 Calculation Engine Version: 0.7.0417.9977	
Axis Studio usage license	
This license agreement is between you and NOITOM which is about the the Axis Studio software license. Users must read carefully and agree to the Axis Studio Application License Agreement (hereinafter referred to as the "License Agreement") before installing and using the Axis Studio software. Do not install or use the Axis Studio software until you have read and agreed to the License Agreement. If you install or use the Axis Studio software, it means you agree to accept this license agreement.	
Authorization limit	
1. You cannot perform reverse engineering, decompile, crack, change, modify, or detect the Axis Studio software source code in any way	
你也可以通过Axis Studio发送实时捕捉数据,这时你需要编辑设置的BVH-捕捉部分	
图片中英文翻译: Axis Studio Version -> Axis Studio 版本	

• 按下图步骤打开 "Axis Studio"

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图片中英文翻译: 1. Type "Axis" for search -> 1.在搜索栏输入Axis进行搜索 2. Click Axis Studio to open the app -> 2.单击Axis Studio图标打开应用程序 3. or You can double click the shortcut to open the app -> 3.或者你可以通过手机 Axis Studio的快捷方式图标打开应用程序

• 打开并回放一个文件

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2.0-Push Up Wuda-full body with glove-100fps 2.0-Regular Finger movement Wuda-full body with glove-100fps Uda-full body with glove-100fps Wuda-full body with glove-100fps Wuda-full body with glove-100fps Wuda-full body with glove-96fps HipContact_1 Wuda-full body with glove-96fps take028 take029 take030 test070102 I. Double Click a file to replay, for example double click "2.0-Run and Jump"	2.0-Fencing			Wuda,Gao- 17 sensors full body
2.0-Regular Finger movement Wuda-tull body with glove-100ps Wuda-10 body with glove-100ps Wuda-17 sensors full body-150fps Wuda-17 sensors full body-150fps Wuda-10 body with glove-96fps take028 take028 take030 test070102 Louble Click a file to replay, for example double click "2.0-Run and Jump"	• 2.0-Push Up			Wuda-full body with glove-100fps
20-kun and Jump Wuda-full body riburgs Wuda-full body with glove-96fps Wuda-full body with glove-96fps take028 take029 take030 test070102 1. Double Click a file to replay, for example double click "2.0-Run and Jump"	2.0-Regular Finger movement			Wuda-full body with glove-100fps
HipContact_2 Wuda-full body with glove-96fps take028 take029 take030 test070102 Locuble Click a file to replay, for example double click "2.0-Run and Jump"	HinContact 1			Wuda-17 sensors tull body-150tps
take029 take030 test070102	• HipContact 2			Wuda-full body with glove-96fps
take029 take030 test070102 1. Double Click a file to replay, for example double click "2.0-Run and Jump"	• take028			wada-iai body wai giove-yorps
take030 test070102 1. Double Click a file to replay, for example double click "2.0-Run and Jump"	• take029			
test070102 1. Double Click a file to replay, for example double click "2.0-Run and Jump"	• take030			
	• test070102			

图片中英文翻译:

1. Click "Simple Project" -> 单击"Simple Project"

1. Double Click a file to replay, for example double click "2.0-Run and Jump" -> 双击一个文件进行回放, 比如双击"2.0-Run and Jump"



```
图片中英文翻译:
Settings -> 设置
```

1. Open Settings Menu -> 1.打开设置菜单 1. Click BVH Broadcasting -> 1.单击BVH数据转发 BVH Broadcasting -> BVH数据转发 BVH-Edit -> BVH-编辑 2. Scroll to "BVH-Edit" to make it enabled -> 2.滚动有侧滑块到"BVH-编辑"并启用 (点击右侧按钮到启用状态) 3. Check to Use Rotation "YXZ" and Type is "Binary" -> 3.检查并确保旋转使 用"YXZ"类型使"用二进制" Rotation -> 旋转 Type -> 类型 Binary -> 二进制 Displacement -> 位移 Use old header format -> 使用旧帧头 OPT -> 光学 4. Use UDP anf set address and Port -> 使用UDP协议并设置地址和端口号 Protocol -> 协议 Local Address -> 本地地址 Distination Address -> 目标地址 Port -> 端口 5. Click Ok to save settings -> 单击确定按钮保存设置 OK -> 确定 Cancle -> 取消

• 开始回放



图片中英文翻译:

1. Click to loop the replay -> 点击启用循环

2. Click to Start replay -> 点击开始回放

4.2 打开虚幻引擎工程并驱动动画

• 打开你的带有Neuron Live Link插件的虚幻工程



图片中英文翻译: Windows -> 窗口 Live Link -> 实时链接

• 实时链接窗口, 根据图中步骤添加Axis Neuron Live源

+ Source - 1 PCLIC	k Source	
Hand Tracking Source	Source Machine	Status
Message Bus Source 🕨		
Axis Neuron Live 🔹 🕨	Local Address	0.0.0.0:7004
LiveLink Virtue ISubject Sources Add Virtual Subject	Is UDP Remote Address RotationOrder	✓ 127.0.0.1:7003 YXZ ▼
2. Select Axis 1	Neuron Live	<mark>,,</mark> Ωk
	3. Set	up and Click OK

```
图片中英文翻译:
Source -> 源
Presets -> 预设
1. Click Source -> 点击源
2. Select Axis Neuron Live -> 选择Axis Neuron Live
3. Setup and Click OK -> 设置并点击OK
```

如果源已就绪你就会在窗口中看到可用的对象命名,在图中就是 chr00 你要在后续的步骤中使用这 个名称

+ s	ource 🔻	🕅 Presets 🗸	5						
Sou	гсе Туре			Source Machine		Status			
Axis	Studio@0.0	0.0.0:7004		UDP://0.0.0.0:7004		Running			đ
The second se									
	Subject Nar	me					Role		
	Subject Nar Axis Stud	me dio@0.0.0.0:7004	4		_	_	Role	_	
.	Subject Nar Axis Stud chr00	me dio@0.0.0.0:7004	4		_	_	Role Animation		•
2	Subject Nar Axis Stud chr00	me dio@0.0.0.0:7004	4				Role Animation		•
2	Subject Nar Axis Stud chr00	me dio@0.0.0.0:7004	4				Role Animation		•
2	Subject Nar ⊿Axis Stud chr00	me dio@0.0.0.0:7004	1				Role Animation		·
~	Subject Nar Axis Stud chr00	me dio@0.0.0,0:7004	4				Role Animation		·
2	Subject Nar Axis Stud chr00	me dio@0.0.0.0:7004	4				Role Animation		·
2	Subject Nar Axis Stud chr00	me dio@0.0.0.0:7004	1				Role Animation		•

• 在内容浏览器中打开DemoMap(World'/NeuronLiveLink/Maps/DemoMap.DemoMap')资产位于 Neuron Live Link插件中

🗮 Content Browser 🛛 💫 Output Log 🛛 👋	Description (s. 1)	
🕒 Add New 🚽 📩 Import 🕒 Save All 🖌 🍝 🛤		
Search Paths Content Content C++ Classes NeuronLiveLink Content Maps PNS	Path: /NeuronLiveLink/Maps Cooking Filepath Length: 128 / 260 Primary Asset Type: Map Primary Asset Name: /NeuronLiveLink/Maps/DemoMap Date Modified: 8/11/21	
Por NeuronLiveLink C++ Classes Dom MocapApiAdapter Ara NeuronLiveLink Con Private Por Divide	2 items (1 selected)	

图片中英文翻译: Level -> 关卡 Path -> 路径 Cooking Filepath Length -> 烘焙文件路径长度 Primary Asset Type -> 主资产类型

Subject Name -> 对象命名

• 在世界大纲视图点击"PNS_Actor"并编辑Subject name (对象命名)

📔 World Outliner 🛛 🛛		
Search		📮 🔍
Label	•	Туре 🚽
🐵 4 🦀 DemoMap (Edito	or)	World
🐵 🍆 Actor	-	Actor
Atmospheric H	-og	AtmosphericFog StaticMeshActor
A Floor		StaticMeshActor
🐵 🛛 😻 Light Source		DirectionalLight
🗿 🦌 Player Start		PlayerStart
PNS_Actor		Edit PNS_Actor
 PNS_Prop Sky Sphere Olart int+ 		Edit BP_Sky_Sphere
SkyLight ShbereReflect	ionCapture	SKYLIGHT SphereReflectionCapti
C is opherenteneou	lonouptare	ophereneneouonoupa
11 actors (1 selected)		👁 View Options -
🕄 Details 🛛 🛛 🛛		
PNS_Actor		6
+ Add Component -		🕫 Edit Blueprint 🗸
Search Components		Q
PNS_Actor(self)		
🔺 🍋 DefaultSceneRoot (I	nherited)	
🏦 SkeletalMesh (Inhe	erited)	
S LiveLink (Inherited)		
Search Details		•• 🏢 🍳
⊿ Transform		
Location 👻	X 0.0 🛛 Y 0.0	Z 0.0 Z
Rotation 👻	X 0.0 ° 🛛 Y 0.0 °	Z 0.0 ° Z
Scale 🔫	X 1.0 🖍 Y 1.0	SZ 1.0 S 🔓
⊿ Default		
Subject Name	chr00 🔽 🗢	
▲ Replication		Subject Name
Net Load on Client	<	
4 Bendering		

图片中英文翻译: World Outliner -> 世界大纲视图 Details -> 细节 Default -> 默认 1. Click PNS_Actor -> 点击PNS_Actor节点 2. Pick a valid Subject Name -> 选取有效的Subject Name(图中是chr00) • 确保你的编辑器视口(Viewport)开启了实时渲染



图片中英文翻译: Viewport Options -> 视口选项 Realtime -> 实时 Toogles real time rendering in this viewport -> 在此视口中切换实时渲染

• 你将会看到机器人角色在视口中移动



5. 导入一个新的骨骼网格体

你可以从FBX文件中导入骨骼网格体到虚幻引擎。本文会将一个名为**PN_Avatar.fbx**的文件导入到虚幻引擎,你可以在<u>PluginBaseFolder/Arts/PN_Avatar.fbx</u>找到这个文件

• 在内容浏览器中点击导入按钮

🗅 Add New 🗸	🛓 Import	🖺 Save All	÷ •
Search Paths		٦	
🗀 Content			

图片中英文翻译:
Add New -> 新增
Import -> 导入
Save All -> 保存所有

• 在弹出的文件选择窗口定位到你要导入的fbx文件并点击Open

					X
← → ~ ↑	Change (19	Plugins > NeuronLiveLink	Arts v	⊘ Search Arts	
Organize 🔻 New	w folder				?
 OneDrive This PC 	^	PN_Avatar.fbx Type: 3D Dbject		Date modified: 12/31/2019 4:15 PM Size: 1.32 MB	
JD Objects Desktop		1.Select the file			
Downloads Music					
Pictures Videos	~				
	File name: PN_Avatar.fbx			 All Files (*.3g2;*.3gp;*.3gpp;*.3g 	\sim
			2. Click Open -	Open Cancel	

图片中英文翻译: Import -> 导入 1. Select the file -> 1.选择文件 2.Click Open -> 2.点击Open按钮 • 在 FBX导入选项 对话框中进行适当地设置, 注意确保勾选了骨骼网格体选项

11 F	BX Import Options
Import Skeletal Mesh	Reset to Default
Current Asset: /Game/PN_A	watar
⊿ Mesh	
Skeletal Mesh	✓ 5
Import Mesh	✓ ¹
Import Content Type	Geometry and Skinning Weights. 🕶
	None 👻
Skeleton	None 🔶 🔎
▲ Animation	
Import Animations	✓
Animation Length	Exported Time 👻
	–
▲ Transform	
▷ Import Translation	X 0.0 Y 0.0 Z 0.0 Y
Import Rotation	X 0.0 Y 0.0 Z 0.0 Y
Import Uniform Scale	1.0
⊿ Miscellaneous	
Convert Scene	
Force Front XAxis	-
Convert Scene Unit	
⊿ Material	
Search Location	Local 👻
Material Import Method	Create New Materials -
	-
	Import All Import Cancel

图片中英文翻译:

FBX Import Options -> FBX导入选项 Import Skeletal Mesh -> 导入骨骼网格体 Reset to Default -> 重置为默认 Current Asset -> 当前资产 Mesh -> 网格体 Skeletal Mesh -> 骨骼网格体 Import Mesh -> 导入网格体 Import Content Type -> 导入内容类型 Skeleton -> 骨骼

```
Geometry and Skinning Weights -> 几何体和蒙皮权重
Animation -> 动画
Import Animations -> 导入动画
Transform -> 变换
Import Translation -> 导入平移
Import Rotation -> 导入旋转
Import Uniform Scale -> 导入统一缩放
Miscellaneous -> 杂项
Convert Scene -> 转换场景
Force Front XAxis -> 强制前X轴
Convert Scent Unit -> 转换场景单元
File Version -> 文件版本
File Creator -> 文件创建器
File Creator Application -> 文件创建器应用程序
File Units -> 文件单元
File Axis Direction -> 文件轴方向
File Frame Rate -> 文件帧率
Animation Start Frame -> 动画起始帧
Animation End Frame -> 动画结束帧
Import All -> 导入所有
Import -> 导入
Cancle -> 取消
```

注意:如果没有选择引擎现有骨骼,引擎会从导入的骨骼网格体创件一个新的骨骼。新骨骼的 名称为骨骼网格体名称后人添加Skeleton后缀。

• 点击上图**导入所有**或者**导入**按钮将FBX文件导入虚幻引擎,下图展示了从FBX文件导入的资产,点击内容浏览器上的**保存所有 (Save All)** 按钮保存导入的资产



6. 操作动画蓝图 (Animation Blueprint) 资产驱动骨骼

在资源浏览器中右键点击你要操作的骨骼网格体资产并点击创建->动画资产->动画蓝图



图片中英文翻译:
1. Right Click the Skeletal Mesh -> 1.右键单击骨骼网格体
1. Select Create the Anim Blueprint -> 1.选择创建然后动画蓝图
Create -> 创建
Anim Blueprint -> 动画蓝图
Anim Assets -> 动画资产

动画蓝图会和目标骨骼网格体资产常见在相同目录,你可以编辑它的名称或者使用默认的名称,本 • 文中我们将它命名为BPA_PN_Avatar



图	くして	な翻译	<u>:</u> :					
1.	Edit	the	Anim	Blueprint	asset	name	->	1.编辑动画蓝图资产的名称

• 双击动画蓝图 BPA_PN_Avatar来开始编辑动画蓝图



图片中英文翻译:

1. Double click AnimGraph to enter AnimGraph -> 1.双击AnimGraph打开AnimGraph动 画图表 2. In AnimGraph, Right Click in White Space to show the contect menu then type "livelinkpose" to show "Live Link Pose Node" in the menu -> 2.右键点击 AnimGraph中的空白处并在弹出的上下文菜单中键入"livelinkpose"找到实时链接姿势(Live Link Pose) 节点 3. Click "Live Link Pose" to Add it to the AnimGraph -> 3.点击实时链接姿势将其加 入到AnimGraph My Blueprint -> 我的蓝图 Add New -> 新建 Graphs -> 图表 EventGraph -> 事件图表 Event Blueprint Update Animation -> 事件蓝图更新动画 Animation Graphs -> 动画图表 All Actions for this Blueprint ->此蓝图的所有操作 Context Sensitive -> 情境关联 Live Link -> 实时链接 Live Link Pose -> 实时链接姿势

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• 选择实时链接对象命名(Live Link Subject Name)并连接到输出姿势



图片中英文翻译:

1. Click Live Link Subject Name Combo box to pick a subject name -> 1.点击 Live Link Subject Name组合框选择—个对象命名 2. Connect Live Link Post Output to Output Pose Result Pin -> 2.连接实时链接姿 势的输出引脚到输出姿势的Result引脚 Output Pose -> 输出姿势 <No Preset Selected> -> <未选择预设项> Subject -> 对象 Role -> 角色 Animation -> 动画

• 进入内容浏览器为骨骼添加NeuronLiveLinkRemapAsset

Content	1	Save Current Sour	ce Control Mode	s Content N	Marketplace	Settings	Blueprints	Cinematics	Build Co
Add Feature or Content Pack	tor	🗢 🥪 Perspectiv	e 🜍 Lit Show						🤹 🎯
Folder	_								-
🚚 New Folder	haracter								
C++ Class	wn								
New C++ Class									
Create Basic Asset	ht					0			
Blueprint Class						V			
Level	art								
Material									
Particle System						*	2		
Substance							A		
Create Advanced Asset						+			
Animation Artificial Intelligence						5	JA	69	
Blendables	•					0	I V		
Blueprints		int of		1997					
Editor Utilities	Bluepr	int Class	Blueprints are special a	esets that provide a	n intuitive node	-based interface	that can be up	sed to create new:	types of Actors
Foliage		int Function Library	and script level events;	giving designers and	d gameplay prog	rammers the to	ols to quickly c	reate and iterate o	ameplay from
FX			within onlear Editor wi	indut ever needing to	write a life of c	oue.	_		
Materials & Textures	👌 🎢 Bluepri	int Interface							
Miscellaneous	River	int Macro Library							
Paper2D		Intriviaci o Elbrary							
Physics	🕨 📔 Enume	eration							
Sounds									
User Interface	Structu	ure							
Add New - 🗻 Import	🖹 Save All		int 🕨						
Search Paths		D 🗌 🛛 🖓 Filter:	Search Content						
Content		_					han and		·
C++ Classes									Î
NeuronLiveLink Content Maps NeuronLiveLink Content			BPA_PN_ M_E	octy M_Bocty_Dark M	M_FaœMask	M_logo PN_/	Avatar PN_Av	atar_ PN_Avatar_ m PhysicsAsse	. PN_Avatar_ et Skeleton
Image: Second	sses								
		10 item	S						

图片中英文翻译: 1. Click Add New -> 1.单击新増 2. Select Blueprint->Blueprint Class to Add a new Blueprint -> 2.选择蓝图->蓝 图类添加一个新的蓝图资产 Blueprint -> 蓝图 Blueprint Class -> 蓝图类 Blueprint Function Library -> 蓝图函数库 Blueprint Interface -> 蓝图接口 Blueprint Macro Library -> 蓝图宏库 Enumeration -> 枚举 Structure -> 结构 • 在选取父类对话框中选择"NeuronLiveLinkRemapAsset"作为父类

11	Pick Parent Class
▲ Common Classes	
C Actor	An Actor is an object that can be placed or spawned in the world.
8 Pawn	A Pawn is an actor that can be 'possessed' and receive input from a controller.
🖟 Character	A character is a type of Pawn that includes the ability to walk around.
📡 Player Controller	A Player Controller is an actor responsible for controlling a Pawn used by the player.
📓 Game Mode Base	Game Mode Base defines the game being played, its rules, scoring, and other facets of the game type.
la Actor Component	An ActorComponent is a reusable component that can be added to any actor.
😪 Scene Component	A Scene Component is a component that has a scene transform and can be attached to other scene components.
All Classes 1. Clic	k "All Classes"
neuron 🔶 2. Typ	e "neuron" to filter classes ×
▲O Object	
Actor	
GameModeBase NeuronLiveLink LiveLinkRetargetAsse	ron LiveLinkRemapAsset as Parent
NeuronLiveLinkRen	napAsset
7 items (1 selected)	Neuron Live Link Remap Asset 💿 View Options 🗸
	Cancel
4. Clic	k "Select" to Create BP

```
图片中英文翻译:

    Click "All Classes" -> 1.点击"所有类"
    Type "neuron" to filter classes -> 2.键入"neuron"来过滤类
    Choose NeuronLiveLinkRemapAsset as Parent -> 3.选择
    NeuronLiveLinkRemapAsset作为父类
    Click "Select" to Create BP -> 4.点击"选择"来创建蓝图
    Pick Parent Class -> 选取父类
    Common Classes -> 常见类
    All Classes -> 所有类
    items(1 selected) -> 7项 (1项选中)
    View Options -> 视图选项
    Select -> 选择
    Cancel -> 取消
```

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- 蓝图会在内容浏览器中创建,你可以将其命名为PN_Avatar_RemapAsset 或其他名称
 ▼ Filters ✓ Search Content
 Maps
 BPA_PN_ Avatar
 M_Body_Dark
 M_Body_Dark
 M_FaceMask
 M_Logo
 PN_Avatar
 PN_Avatar
- 返回动画蓝图编辑器,修改实时链接姿势(Live Link Pose)节点的retarget asset



图片中英文翻译:

```
    In AnimGraph Click Live Link Pose Node -> 1.点击AnimGraph中的实时链接姿势节点
    In Details Panel, Select the new blueprint asset(PN_Avatar_remapAsset) as
Retarget Asset -> 在细节面板选择新创建的蓝图资产(上边创建的PN_Avatar_remapAsset资产)
作为Retarget Asset
Details -> 细节
Preview Scene Sett -> 预览场景设置
Anim Preview Editor -> 动画预览编辑器
Asset Browser -> 资产浏览器
```

• 保存动画蓝图,下一步我们将编辑PN_Avatar_RemapAsset进行骨骼名称重映射

7. 重映射骨骼名称

你的骨骼网格体可以使用与Axis完全不同的骨骼名称。此时你将不能直接使用 NeuronLiveLinkRemapAsset 作为你的实时链接姿势的 Retarget Asset,你需要为你的骨骼创建自己的 Retarget Asset,本节将继续 Retarget Asset的定制过程。在上一部分操作动画蓝图(Animation Blueprint)资产驱动骨骼 中我们已经创建了蓝图PN_Avatar_RemapAsset 结接下来我们将开始编辑 它

我们使用的骨骼名称

Hips = 0, RightUpLeg, RightLeg, RightFoot, LeftUpLeg, LeftLeg, LeftFoot, Spine, Spine1, Spine2, Neck, Neck1, Head, RightShoulder, RightArm, RightForeArm, RightHand, RightHandThumb1, RightHandThumb2, RightHandThumb3, RightInHandIndex, RightHandIndex1, RightHandIndex2, RightHandIndex3, RightInHandMiddle, RightHandMiddle1, RightHandMiddle2, RightHandMiddle3, RightInHandRing, RightHandRing1, RightHandRing2, RightHandRing3, RightInHandPinky, RightHandPinky1, RightHandPinky2, RightHandPinky3, LeftShoulder, LeftArm, LeftForeArm, LeftHand, LeftHandThumb1, LeftHandThumb2, LeftHandThumb3. LeftInHandIndex, LeftHandIndex1, LeftHandIndex2,

LeftHandIndex3, LeftInHandMiddle, LeftHandMiddle1, LeftHandMiddle2, LeftHandMiddle3, LeftInHandRing, LeftHandRing1, LeftHandRing2, LeftHandRing3, LeftInHandPinky1, LeftHandPinky1,
LeftHandPinky3, Spine3,

Axis Neuron 使用Hips~Spine2,Spine3,Neck,Head~LeftHandPinky3作为骨骼名称, Neck1未使用

Axis Studio 使用Hips~LeftHandPinky3作为骨骼名称, Spine3未使用

7.1 在编辑器中重映射骨骼名称

• 在内容浏览器之后双击PN_Avatar_RemapAsset打开蓝图编辑器并确保Enable BoneMapping是选中状态依照图中2-3不编辑骨骼名称重映射

ս	/ 💽 PN Avalar HemapAppel	×					
File	Edit Asset View Debug	Window Help					Parent class: Neuron Live Link Remap Asse
2 Compi	ile Save Browse						
💐 ci							
NOTE:	This is a data only blueprint, so o	nly the default values are shown.	. It does not have any script or variables. If you wan	t to add some, Open Full Blueprint Editor			
Search	h Details						اه 📃 ۹
∡ Axis	Neuron Bone Mapping						
Enat	ble BoneMapping						sure "Enable BoneMappig" is Checked
0					Hips	Select 👻	
1	-	•			RightUpLeg	Select 👻	
2					RightLeg	Select 👻	
3		x to edit Mapping			e Mapped Name or Im	port a S	eleton and select bones
4		•			LeftUpLeg	Select 👻	
5		•			LeftLeg	Select 👻	
6					LeftFoot	Select 👻	
7		•			Spine	Select -	
8					Spinel	Select 👻	
9		•			Spine2	Select 👻	
10			Neck		Neck	Select 💌	

图片中英文翻译:

```
1. Make sure "Enable BoneMapping" is checked -> 1. 确保Enable BoneMapping是勾
选状态
2. check the box to edit Mapping for this bone -> 2. 勾选骨骼名称前的选择框来开始
编辑这跟骨骼的重映射
3. Modify the Mapped Name or Import a Skeleton and select bones -> 3.在文本框
中更改映射的骨骼名称或者导入一个骨骼并选择一根骨骼的名称
Parent Class -> 父类
Compile -> 编译
Save -> 保存
Browse -> 浏览
Class Defaults -> 类默认值
NOTE: This is a data only blueprint, so only the default values are shown,
It does not have any script ot variables, If you want to add some OPen Full
Blueprint Editor -> 注意: 这是一个纯数据蓝图,所有只显示默认值。 它不包含任何脚本或变
量,如果需要添加,打开完整蓝图编辑器
Search Details -> 搜索详情
```

• 导入骨骼用于重映射



图片中英文翻译:
1. Scroll to the end and click "Pick a skeleton" -> 1.滚动到页面下方并点击"Pick a skeleton"
2. Select the skeleton you want to map tp then click it -> 2. 选择要讲Axis骨骼 映射到的骨骼并点击它
1. Pick a skeleton will add bones in the skeleton to the list -> 1. "Pick a skeleton"会将骨骼的所有骨头架到列表中
2. Click Select -> 2.单击Select
3. You can type a name to search form the list -> 3. 通过输入名称可以在列表中进行 搜索
4. Click the skeleton will modify the mapped name with the skeleton you select -> 4. 单击读个骨骼名称将会将映射的骨骼名称改为你选中的骨骼



图片中英文翻译:

1. Bone name Prefix Can add a prefix to each mapped bone, you can type less words -> 1. 骨头名称前缀 (Bone name Prefix) 可以为映射的所有骨头添加一个共同的前缀来减 少应适时输入的字符数量

2. After you type enter, the prefix will be updated -> 2.输入回车后, 前缀名称会 进行更新

• 编辑UseDisplacementData

50	•		Noitom_ LeftHandMiddle3	Select 👻	
51	~		Noitom_ LeftInHandRing	Select 👻	
52			Noitom_ LeftHandRing1	Select -	
53	•		Noitom_ LeftHandRing2	Select 👻	
54	•		Noitom. LeftHandRing3	Select -	
55	•		Noitom_ LeftInHandPinky	Select 👻	
56	•		Noitom_ LeftHandPinky1	Select -	
57	•		Noitom_ LeftHandPinky2	Select 👻	
58	•		Noitom_ LeftHandPinky3	Select -	
59			Noitom_ Spine3	Select 👻	
Skeleton /Game/PN_Avatar_Skeleton	n.PN_Avatar_Skeleton				
Pick a skeleton					
Mone Name Prefix		Notom			
Axis Neuron Live Link Retarget					
Use Displacement Data		Contraction Contraction Contraction			uata or not in remapping

图片中英文翻译:

1. Use Displacement Data indicate whether you use the replacement data or not in remapping -> 1.Use Displacement Data表示你在重映射是是否使用位移数据 (如果有 的话)

• 如果骨骼的默认姿态不是T-Pose,你可以提供有个T-Pose的动画序列到实时链接姿势的Input Pose 引脚



图片中英文翻译:

1. Drag the TPose Anim to animGraph -> 1.将TPose的动画序列拖到AnimGraph

2. Connect the output with Live Link Pose Input Pose Pin -> 2.连接上边动画的输 出引脚与实时动画姿势的Input Pose引脚

AxisUnrealLiveLinkPlugin Handbook_CN

可以使用下面的方法为骨骼制作TPose动画序列。打开你使用的骨骼资产,将骨头的姿势拖 拽成 T-pose,然后将当前的姿势保存到一个动画序列



7.2 通过常在函数进行骨骼重映射

我们推荐你是用上面的方法进行骨骼重映射,如果你想对骨骼映射做一些更取巧的事情,你可以重载 NeuronLiveLinkRemapAsset 蓝图中的 GetRemappedBoneName 函数实现你的相反,在重载函数之 前请先确保你没有勾选"Enable BoneMapping "



下面是使用重载函数的方映射手指名称中"InHand"字段的方法



7.3 从LiveLinkRetargetAsset集成并完成你自己的重定向 需求

如果你是个高级开发者,你可以从C++类LiveLinkRetargetAsset进行集成并控制重定向的所有过程,就像插件中的NeuronLiveLinkRemapAsset类一样。

8.使用LiveLink控制器组件LiveLink Controller Component控制道具

这是Livelink组件的基本用法,具体细节可参考Unreal官方文档使用LiveLink数据部分<u>https://docs.unrealengine.com/4.27/zh-CN/AnimatingObjects/SkeletalMeshAnimation/LiveLinkPlugin/LiveLinkBlueprintComponent/</u>,如过插件有收到Transform角色的数据就可以用它驱动道具了

9.1 在关卡蓝图中实现实时姿势动画驱动

• 在主工具栏 中单击click the **蓝图 (Blueprints)** 按钮并选择**打开关卡蓝图(Open Level** Blueprint)

Save Current Source Control Content Marketplace Settings	Blueprints Cinematics Build Pl
Perspective Lit Show	Blueprint Class New Empty Blueprint Class Convert Selected Components to Blueprint Class Convert Selected Actor to Blueprint Class
	Level Blueprints Image: Comparison of the second
	GameMode: GameModeBase World Override GameMode: Not overridden!

注意: 在事件图表(Event Graph) 会显示默认的**事件开始运行(Event BeginPlay)** and **事件 Tick(Event Tick)**.

File Edit View Debug	Window Help	
🚨 My Blueprint 🛛 🛛	🍬 🔲 🏟 🕐 🚚 🐂 🕨	
+ Add New ⊽ Searc 🔎 👁 ⊽	Compile Save Browse Find Hide Unrelated Class Settings Class Defaults Play	»
⊿Graphs +	Event Graph	
 EventGraph Event BeginPlay Event Tick 	☆ ◆ ▲ Untitled > Event Graph	Zoom 1:1
Functions (18 Overridable)		
Macros +	This node is disabled and wi Right-Click to Create New Nodes.	
Variables +		
Event Dispatchers +	Event BeginPlay	
	This node is disabled and will not be called. Drag off pins to build functionality. Event Tick Delta Seconds	

• 添加一个控制实时链接(Live Link)一个新变量

• 将鼠标指针移动到+按钮,点击+**变量(+Variable)**按钮在蓝图面板中添加显变量,在细节面板 之后为他命名为LiveLinkHandle并按下回车键



 在细节面板之后设置变量类型(Variable Type)为结构 (Structure) LiveLink源处理 (Live Link Source Handle)



图片中英文翻译: Variable -> 变量 Variable Name -> 变量命名 Variable Type -> 变量类型 Search Live Link source -> 搜索Live Link source Structure -> 结构 Live Link Source Handle -> Live Link源处理

• 在事件图表(Event Graph)中创建Neuron Live Link Source at runtime节点并与**事件开始运行** (Event BeginPlay)连接 添加Create Neuron Live Link Source at runtime节点并与事件开始运行(Event BeginPlay)y连接



。 创建LiveLinkHandle的设置节点并与Create Neuron Live Link Source at runtime连接

A My Blueprint 🛛 👋	📑 Event Graph 🛛 🛛		
+ Add New マ Search 🔎 ⊙ マ	☆ 🔶 🔶 📑	Untitled > Event Graph	
⊿Graphs +			
 EventGraph Event BeginPlay Event Tick 			
Functions (18 Overridable)	Event BeginPlay	f Create Neuron Live Link Source at runtime 1	Drag out
Macros +			
Variables +		Connection String Handle	Executable actions
LiveLinkHandle			▲ Variables variable you add
Event Dispatchers			⊿ Default
📑 Event Graph	×		
☆ 🕈 🕈	Pac	kageBP 🗲 Event Graph	1
🔷 Event B	eginPlay 🔲	f Create Neuron Live	Link Source at runtime
	•		•
		O Connection String	Handle 🔿

 填充Create Neuron Live Link Source at runtime的Connection String引脚 打开实时链接(Live Link)窗口

U Live Link ×		×
+ Source - 🕅 Presets - 🕤		0 °
Source Type Source Machin Status	Search Details 🖉 <	••
Axis Studio UDP://0.0.0.0:7/Running 💼	⊿ Settings	
	Evaluation Mode Engine Time -	
Subject Name Role		
Axis Studio	⊿ Buffer - Settings	
Chr00 Animation O	Max Number Of Fram 10 💽	
	Valid Buffer 💦 💽	
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	⊿ Debug	
	Source Debug Infos 0 Array elements 🕂 💼	
	· · · · · · · · · · · · · · · · · · ·	
(53) Trying to add more than 64 frames in the same frame. Old	est frames will be discarded.	
0 Error(s) 0 Warning(s)	ci	lear

选择 Axis Studio源并点击设置面板的显示高级选项(Show Advanced)箭头(如下图中2所示)

	- - ×
+ Source - 🕅 Presets - ")	00
Source Type Source Machin Status	Search Details 🔎 👁 🔻
Axis Studio UDP://0.0.0.0:7/Running 1 💼	⊿ Settings
	Evaluation Mode Engine Time -
Subject Name Role	
Axis Studio	▲ Buffer - Settings Show Advanced
	Max Number Of Fram 10
	Valid Buffer 1.0 s 💽
	Offset 0.0 s
	₹
	⊿ Debug
	Source Debug Infos 0 Array elements 🕂 💼
• (53) Trying to add more than 64 frames in the same frame. Olde	est frames will be discarded.
0 Error(s) 0 Warning(s)	Clear

链接字符串(Connect string)和Factory将在面板中显示出来

للا 🔊 Live Link	×				_ [⊐ ×
+ Source - 🕥 Presets -)					Q _0
Source Type Source Machin Sta	tus		Search Details			₽ ⊙ -
Axis Studio UDP://0.0.0.0:7/Rur	ning	Ò	⊿ Settings			
			Evaluation Mode 1	copy connetion Strin	g	
Subject Name Axis Studio	Role		Connection String	0.0.0.0:7002, 1, 192.168.8.2	49:7986	5
🖌 chr00	Animation	•	Factory	Class'/Script/NeuronLivi	¢	×
						
			⊿ Buffer - Settings			
			Max Number Of Fram	10 🔽		
			Valid Buffer	1.0 s 💽		
			Offset	0.0 s		
				₹		
			n 1			
• (53) Trying to add more than 6	4 frames in the same frar	ne. Olde	st frames will be discar	ded.		
0 Error(s) 0 Warning(s)						Clear
将链接字符串(Connectio	n String)的值拷!	灭出 来	采并粘贴到关卡雷	蓝图时间图表的 Cr	eate	

Neuron Live Link Source at runtime节点的Connection String引脚

Event Graph ×		
☆ 🔶 🔶 📑 Package	eBP > Event Graph	
Event BeginPlay	f Create Neuron Live Link Source at runtime	SET
	Connection String 0.0.0.0:7002, 1, 192.168.8.249:7986	Live Link Handle

- 移除live link 源处理结构并与事件结束运行(Event EndPlay)节点相连
 - 。 右键在空白处单击以创建事件结束运行(Event EndPlay).



。 创建Remove Source节点并连接

	xecutable ac	•••••		
End Play Reason		ctions	C	✓ Context Sensitive ▶
	Audio	2	Search Remove source	.e
	f Remove Live Link	Source	Effect from Preset Chai	n
	, Remove S Take Recorder	Source	3 Select this on	e

。 创建LiveLinkHandle的获取节点并与Remove Source节点相连

Event Graph ×	
☆ 🔶 🔶 📑 PackageBP > Event Graph	 Actions providing a(n) Live Link So Handle Structure (by ref)
	get 2 Search get
	✓Hand Tracking
	⊿ Magic Leap
	$- \int$ Get Magic Leap Hand Tracking Live L
	⊿ Utilities
	⊿ Array
	f Get (a copy)
	f Get (a ref)
	⊿ Variables
	⊿ Default
Event End Play	Get Live Link Handle
	3 Select the variable you add
End Play Reason	
1 Drag out	

 The event graph will show like the following image, Click Compile and Save the level blueprint 整个事件图表如下图所示,点击编译(Compile)并保存(Save)关卡蓝图

Compile 1	vse Find Hide Unrelated Class S	ettings Class Defaults Play	<mark>ickageBP →</mark> Ø Debug Filter		
Ӓ My Blueprint 🛛 🛛	Event Graph ×				
+ Add New 👻 Search 💭	💁 🏠 🔶 🔶 📑 Packa	geBP 🗲 Event Graph			
 ▲Graphs ▲ EventGraph ♦ Event BeginPlay 	+	f Create Neuron Live Link Source at	runtime		
 Event Tick Event End Play 				SET	D
Functions (17 Overridable)	+	Connection String	Handle 🍑	Live Link Handle	•
Macros		0.0.0.0.1002, 1, 192.100.0.249.190			
⊿ Variables	+				
💳 LiveLinkHandle					
Event Dispatchers	+				
	Event End Play	f Remove Source	e		
			D		
	End Play Reason 🔿	 Source Handle 	Return Value 🔿		
	Live Link Ha	andle 🕞	FVFL	RITIFP	RI

9.2 在关卡中放置骨骼网格体(Skeletal Mesh)并设置动画 蓝图(animation blueprint)

在**内容管理器(Content Browser)**中, 定位到你要添加到关卡中的骨骼网格体资产并将其作为Skeletal Mesh Actor添加到关卡中并如下图是指它的动画类(Anim Class)。然后就可以点击运行(Play)按钮并 测试你的动画效果。如果一切运行正常,不要忘了保存你的关卡地图和其他资产



注意: 你还可以直接将动画蓝图直接拖拽到关卡的视口或者直接使用我们的PNS_Actor蓝图类然后使用你自己的骨骼网格体和动画蓝图来设置你的动画角色

9.3 设置游戏默认地图(Game Default map)

在打包游戏之前,你首先需要设置**游戏默认地图(Game Default Map)**,这张地图会在打包的游戏启动时加载。如果你适应的是空工程并且没有设置地图,你打包的游戏启动后将只能看到黑屏,如果你是用的 是模板地图比如第一人称模板(First-Person template)或者第三人称模板(Third Person template),模板 的初始地图将会加载

• 点击编辑器主菜单的编辑->项目设置->地图和模式(Edit > Project Settings > Maps & Modes)



注意: 你肯同样需要设置你自己的游戏模式(game mode)来使用你自己的玩家角色和玩家控制器

9.4 将你的工程打包成可执行的二进制程序

在编辑器主菜单选择文件->打包项目->[平台名称]对工程进行打包 (图中我们选择了Windows 64-bit 平台)

File Fdit	Window	Help								
Load and Save								4		
Mew Leve	el	Ctrl+N	h						×	•
👩 Open Lev	/el	Ctrl+O		Y	Ç.	Save	Current	Source	Control	
🚽 Save Cur	rent	Ctrl+S	<u>–</u>				Dem			
🌠 📓 Save Cur	rent As	Ctrl+Alt+S			Q		Pers	spective		JĽ
🗐 Save All I	Levels		oto	-						
🏠 🕅 🏫 🏠	set	Ctrl+P	icio	ſ	Ø					
🗐 Save All		Ctrl+Shift+S								
Choose Files	to Save		:har	acte	er 🕜					
Connect To S	Source Con	trol							~	
Project			Paw	n	0					
🙀 New Proj	ect									
🚯 Open Pro	ject		ght		0	1000				-
💭 New C++	Class									
🔟 Package	Project	2		÷	Android	I				
Generate Vis	ual Studio I	Project			HoloLens		22			
Cook Conten	t for Windo	ws		Ś	iOS					
DataValidation				۸.	Linux	I				
🧽 Validate	Data			e	Lumin					
Actors				Ć	tvOS		—x			
Import Into L	evel				Windows	3		Window	vs (32-bi	it)
Export All				Zip L	Jp Project			Window	vs (64-bi	it)
Export Select	ed				Configure	ation		4		В
🔶 Favorite	l evels			Build	Configura	ation	- CC	ontent	▶ Ani	
				Pack	aging Sett	tings				
Recent L	evels)		Supp	orted Plat	forms				
🔞 Recent P	rojects)	NIN.							
📲 Exit			1							

一个选择目标目录的对话框将会弹出,打包成功后这个目录会包含打包后的项目

10. 插件结构

```
| NeuronLiveLink.uplugin 插件描述文件Plugin description file
| BuildInfo 插件基本构建信息文件Basic Build info for plugin
+---Arts
Mannequin_Tpose.FBX 插件中使用的UE4默认骨骼结构Mannequin的TPose动画 UE4
default Mannequin Tpose animation FBX
      SK_Mannequin.FBX 插件中使用的UE4默认骨骼结构Mannequin UE4 default
Mannequin skeletal mesh
      Mixamo_Ch46_nonPBR.fbx 插件中的Mixamo Ch46动态网格体FBX资产 Mixamo Ch46
model in FBX format
      PN_Avatar.fbx 本文所用导入到虚幻引擎的FBX文件FBX File for import skeletal
animation to unreal engine
      PN_Avatar_Stickman01.fbx 插件中提供的默认骨骼结构FBX文件 Plugin default
1
skeletal mesh
+---Binaries
  \---Win64 插件的二进制文件Binaries files of the plugin
+---Content
| BP_PNSBaseActor.uasset 驱动Axis Studio骨骼网格体的Actor基类Base actor for
driving skeletal mesh animation in Axis Studio
| PNS_Prop.uasset 驱动Axis Studio道具的Actor类Actor for driving props in
Axis Studio
+---Maps
  |       DemoMap.umap     插件的展示关卡地图Demo map for use the plugin
DemoMap_BuiltData.uasset 地图的贴图构建数据注册表Build data for map
+---Mannequin 插件提供的UE4默认骨骼结构Mannequin的骨骼网格体、材质、贴图、动画蓝
图、重映射资产及Actor对象 Mannequin skeletal mesh, materials, textures, animation
blueprint, remap asset and actor object in UE4
| +---Mixamo_Ch46 插件提供Mixamo ch46的骨骼网格体、材质、贴图、动画蓝图、重映射资产及
Actor对象 Mixamo ch46 skeletal mesh, materials, textures, animation blueprint,
remap asset and actor object
\---PNSChar 插件提供默认骨骼网格体、材质、贴图、动画蓝图、重映射资产及Actor对象
default skeletal mesh, materials, textures, animation blueprint, remap asset and
actor object
+---Doc
      AxisUnrealLiveLinkPlugin Handbook_EN.pdf 本手册英文版本This handbook in
English language version
      AxisUnrealLiveLinkPlugin Handbook_CN.pdf 本手册中文版本This handbook in
Chinese language version
+---Intermediate 插件的中间文件(生成的头文件和预编译目标文件等)Intermediate
fies(generated header files, precompiled object files etc.) for the plugin
+---Resources
     Icon128.png 插件图标Icon files for plugin
\---Source 插件源码文件Sources files for Plugin
   +---MocapApi 用于从axis studio接收MocapApiC++库exteral MocapApi C++ lib to
receive data form axis studio
```

```
| MocapApiLib.Build.cs
      +---bin
   L
     | ∖---x64 MocapApi C++ lib binary files
      \---include
   MocapApi.h MocapApi C++ lib header file
   +---MocapApiAdapter 用于虚幻引擎的MocapApi适配器MocapApi adapter module to
use MocapApi in unreal engine
   | MocapApiAdapter.Build.cs 模块构建文件Module build file
   \---Public
   MocapApiAdapter.h 模块接口Module interface file
   MocapApiLog.h 模块日志类Log category used in this module
   MocapAppManager.h 模块Mocap应用管理类Mocap application manager
             MocapStructs.h 模块Mocap对虚幻开放的结构Struct used in unreal
   engine for MocapApi
   +---NeuronLiveLink 接收neuron(mocapApi)数据的Live link运行时模块Live link
runtime module for neuron(mocapApi)
   | NeuronLiveLink.Build.cs 模块构建文件Module build file
     | +---Private
     ______ MocapClient.h 在实时连接中接收axis studio数据的Mocap客户端
   MocapClient for receiving axis studio data in live link
            NeuronLiveLinkSourceFactory.h 创建NeuronLiveLinkSource的工厂类
     Factory for create NeuronLiveLinkSource
     SNeuronLiveLinkSourceFactory.h 创建NeuronLiveLinkSource的编辑器
   UI组件Editor UI for create NeuronLiveLinkSource
     SubjectNameSetter.h 用于在动画蓝图中设置对象命名(Subject name)的设
   置器Subject name setter for animation blueprint
   | \---Public
            NeuronBoneMappingInfo.h 用于重定向的骨骼映射信息Bone mapping info
   for retargeting
            NeuronLiveLink.h 模块接口Module interface file
   NeuronLiveLinkBPLibrary.h 蓝图函数库Blueprint library
   NeuronLiveLinkLog.h 模块日志类Log category used in this module
   NeuronLiveLinkRemapAsset.h 驱动动画数据法人重定向资产类Retargrting
   asset for dirving animation data
            NeuronLiveLinkSource.h neuron的实时链接源Live link source for
  neuron
   PNSAnimInstance.h 蓝图动画实例类(可设置对象命名)Blueprint
amimation instance(can set subject name) for diving animation data
   \---NeuronLiveLinkEditor Neuron Live Link编辑器相关模块Neuron Live Link
Editor module
      | NeuronLiveLinkEditor.Build.cs 模块构建文件Module build file
       \---Private
             LiveLinkEditorPrivate.h 模块接口Module interface file
             NeuronBoneMappingWidget.h 骨骼映射用户接口Bone mapping editor UI
             NeuronLiveLinkRemapAssetDetailCustomization.h Neuron的骨骼映射编
辑器Remap editor for Neuron
```

10 常见问题

•

 当我重新编译(rebuild)我的工程时遇到编译错误 我们的插件使用的是预编译的目标文件文件,虚幻引擎在重新编译时会删除这些预编译文件从而导 致我发编译成功,这是虚幻引擎编译系统的缺陷,现行解决方案是重新下载插件并将工程中插件的 Intermediate目录使用新下载的文件进行替换,然后运行构建(Build)操作进行构建