**配置说明**

所有的配置文件都在Config文件夹下面，其中

1. spring.devices.xml文件中device节点表示培养仓对象，里面包含四个培养皿slide1、slide2、slide3、slide4对象，每个培养皿都包含ID、Name、培养皿行和列，病人对象以及包含的具体细胞数组，例如上面slide1中就包含了从S1\_Cell1到S1\_Cell15个细胞对象，其中S1表示培养皿1，Cell1表示细胞1。

<object name="device" type="TimeLapseSimulator.Device.Device, TimeLapseSimulator">

<property name="Slides">

<list>

<ref object="slide1" />

<ref object="slide2" />

<ref object="slide3" />

<ref object="slide4" />

</list>

</property>

<property name="oxygen" ref="oxygen"/>

<property name="carbonDioxide" ref="carbonDioxide"/>

<property name="temperature" ref="temperature"/>

<property name="humidity" ref="humidity"/>

</object>

<object name="slide1" type="TimeLapseSimulator.Device.Slide, TimeLapseSimulator">

<property name="ID" value="1"/>

<property name="Name" value="Slide1"/>

<property name="PlateRows" value="5"/>

<property name="PlateColumns" value="3"/>

<property name="Patient">

<object type="TimeLapseSimulator.Device.Patient, TimeLapseSimulator" >

<property name="ID" value="1"/>

<property name="Name" value="P1"/>

<property name="Time" value="2017/04/23 22:04:11"/>

</object>

</property>

<property name="Position">

<object type="TimeLapseSimulator.Device.Position, TimeLapseSimulator" >

<property name="Row" value="1"/>

<property name="Column" value="1"/>

</object>

</property>

<property name="Cells">

<list>

<ref object="S1\_Cell1" />

<ref object="S1\_Cell2" />

<ref object="S1\_Cell3" />

<ref object="S1\_Cell4" />

<ref object="S1\_Cell5" />

<ref object="S1\_Cell6" />

<ref object="S1\_Cell7" />

<ref object="S1\_Cell8" />

<ref object="S1\_Cell9" />

<ref object="S1\_Cell10" />

<ref object="S1\_Cell11" />

<ref object="S1\_Cell12" />

<ref object="S1\_Cell13" />

<ref object="S1\_Cell14" />

<ref object="S1\_Cell15" />

</list>

</property>

</object>

1. 其他属性表示氧气、二氧化碳、温度、湿度等环境参数对象。
2. spring.slide\_1.xml、spring.slide\_2.xml、spring.slide\_3.xml、spring.slide\_4.xml配置文件依次表示具体培养皿中所有的细胞对象，每个细胞都包含了ID、Name、位置信息对象（所在培养皿的行和列），焦平面信息（7个焦平面），具体可以查看部分配置如下：

<!--培养皿的结构为5x3-->

<!--培养皿1胚胎1-->

<object name="S1\_Cell1" type="TimeLapseSimulator.Device.Cell, TimeLapseSimulator">

<property name="ID" value="1"/>

<property name="Name" value="S1\_Cell1"/>

<property name="Position">

<object type="TimeLapseSimulator.Device.Position, TimeLapseSimulator" >

<property name="Row" value="1"/>

<property name="Column" value="1"/>

</object>

</property>

<property name="Focals">

<list>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="1"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="2"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="3"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="4"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="5"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="6"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="7"/>

</object>

</list>

</property>

</object>

<!--培养皿1胚胎2-->

<object name="S1\_Cell2" type="TimeLapseSimulator.Device.Cell, TimeLapseSimulator">

<property name="ID" value="2"/>

<property name="Name" value="S1\_Cell2"/>

<property name="Position">

<object type="TimeLapseSimulator.Device.Position, TimeLapseSimulator" >

<property name="Row" value="1"/>

<property name="Column" value="2"/>

</object>

</property>

<property name="Focals">

<list>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="1"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="2"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="3"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="4"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="5"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="6"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="7"/>

</object>

</list>

</property>

</object>

1. 最后如果添加了新的配置文件，需要在根目录下找到App.config文件，在spring中的context中添加相应文件，如下所示：

<spring>

<context type="Spring.Context.Support.XmlApplicationContext, Spring.Core">

<resource uri="~/Config/spring.slide\_1.xml" />

<resource uri="~/Config/spring.slide\_2.xml" />

<resource uri="~/Config/spring.slide\_3.xml" />

<resource uri="~/Config/spring.slide\_4.xml" />

<resource uri="~/Config/spring.slide\_5.xml" />

<resource uri="~/Config/spring.devices.xml" />

<resource uri="~/Config/spring.db.xml" />

<resource uri="~/Config/spring.ui.xml" />

</context>

</spring>

具体配置方法：

1. 配置培养皿中细胞个数和排列方式（行、列）
2. spring.device.xml中找到每个培养皿对象（例如slide1~slide4）,找到PlateRows和PlateColumns属性，修改参数值，例如5行3列一共15个胚胎，则配置如下：

<property name="PlateRows" value="5"/>

<property name="PlateColumns" value="3"/>

1. 找到Cells属性，并依次15个胚胎细胞对象数组，如下所示：

<property name="Cells">

<list>

<ref object="S1\_Cell1" />

<ref object="S1\_Cell2" />

<ref object="S1\_Cell3" />

<ref object="S1\_Cell4" />

<ref object="S1\_Cell5" />

<ref object="S1\_Cell6" />

<ref object="S1\_Cell7" />

<ref object="S1\_Cell8" />

<ref object="S1\_Cell9" />

<ref object="S1\_Cell10" />

<ref object="S1\_Cell11" />

<ref object="S1\_Cell12" />

<ref object="S1\_Cell13" />

<ref object="S1\_Cell14" />

<ref object="S1\_Cell15" />

</list>

</property>

1. 依次在slide1~slide4的配置文件spring.slide1.xml~spring.slide4.xml中添加细胞对象，同时注意细胞所在位置满足5×3矩阵，例如第一个细胞S1\_Cell1 对象所在的位置为第一行第一列，第二个细胞S1\_Cell2对象所在的位置为第一行第二列，第三个细胞S1\_Cell3 对象所在的位置为第一行第三列，依次类推，最后一个细胞S1\_Cell15 对象所在的位置为第五行第三列，其中部分配置如下所示。

<!--培养皿的结构为5x3-->

<!--培养皿1胚胎1-->

<object name="S1\_Cell1" type="TimeLapseSimulator.Device.Cell, TimeLapseSimulator">

<property name="ID" value="1"/>

<property name="Name" value="S1\_Cell1"/>

<property name="Position">

<object type="TimeLapseSimulator.Device.Position, TimeLapseSimulator" >

<property name="Row" value="1"/>

<property name="Column" value="1"/>

</object>

</property>

<property name="Focals">

<list>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="1"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="2"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="3"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="4"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="5"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="6"/>

</object>

<object type="TimeLapseSimulator.Device.Focal, TimeLapseSimulator" >

<property name="ID" value="7"/>

</object>

</list>

</property>

</object>

1. 配置培养仓中培养皿个数和排列方式
2. 在spring.devices.xml中找到devie对象节点，其中存在属性Slides数组对象，默认包含了slide1~slide4个培养皿对象，若再添加一个slide5则添加一个对象，如下所示：

<property name="Slides">

<list>

<ref object="slide1" />

<ref object="slide2" />

<ref object="slide3" />

<ref object="slide4" />

<ref object="slide5" />

</list>

</property>

1. 再在其中添加slide5具体的对象，创建配置如下所示：

<object name="slide5" type="TimeLapseSimulator.Device.Slide, TimeLapseSimulator">

<property name="ID" value="5"/>

<property name="Name" value="Slide5"/>

<property name="PlateRows" value="5"/>

<property name="PlateColumns" value="3"/>

<property name="Patient">

<object type="TimeLapseSimulator.Device.Patient, TimeLapseSimulator" >

<property name="ID" value="5"/>

<property name="Name" value="P5"/>

<property name="Time" value="2017/04/24 22:04:11"/>

</object>

</property>

<property name="Position">

<object type="TimeLapseSimulator.Device.Position, TimeLapseSimulator" >

<property name="Row" value="2"/>

<property name="Column" value="4"/>

</object>

</property>

<property name="Cells">

<list>

<ref object="S5\_Cell1" />

<ref object="S5\_Cell2" />

<ref object="S5\_Cell3" />

<ref object="S5\_Cell4" />

<ref object="S5\_Cell5" />

<ref object="S5\_Cell6" />

<ref object="S5\_Cell7" />

<ref object="S5\_Cell8" />

<ref object="S5\_Cell9" />

<ref object="S5\_Cell10" />

<ref object="S5\_Cell11" />

<ref object="S5\_Cell12" />

<ref object="S5\_Cell13" />

<ref object="S5\_Cell14" />

<ref object="S5\_Cell15" />

</list>

</property>

</object>

1. 新建spring.slide\_5.xml文件，并在其中创建S5\_Cell1~S5\_Cell15个细胞对象，具体创建方法可以参考spring.slide\_4.xml文件。
2. 像App.config中添加新创建的spring.slide\_5.xml文件，如下所示：

<spring>

<context type="Spring.Context.Support.XmlApplicationContext, Spring.Core">

<resource uri="~/Config/spring.slide\_1.xml" />

<resource uri="~/Config/spring.slide\_2.xml" />

<resource uri="~/Config/spring.slide\_3.xml" />

<resource uri="~/Config/spring.slide\_4.xml" />

<resource uri="~/Config/spring.slide\_5.xml" />

<resource uri="~/Config/spring.devices.xml" />

<resource uri="~/Config/spring.db.xml" />

<resource uri="~/Config/spring.ui.xml" />

</context>

</spring>

1. 环境参数的配置

在spring.devices.xml文件中还包含了环境参数对象的配置，主要包含氧气、二氧化碳、温度、湿度等信息，如若改变环境参数，修改相应参数即可，具体如下所示：

<!--环境参数 begin-->

<object name="oxygen" type="TimeLapseSimulator.Device.Oxygen, TimeLapseSimulator">

<property name="Concentration" value="50.0"/>

</object>

<object name="carbonDioxide" type="TimeLapseSimulator.Device.CarbonDioxide, TimeLapseSimulator">

<property name="Concentration" value="40.0"/>

</object>

<object name="temperature" type="TimeLapseSimulator.Device.Temperature, TimeLapseSimulator">

<property name="Value" value="27.0"/>

</object>

<object name="humidity" type="TimeLapseSimulator.Device.Humidity, TimeLapseSimulator">

<property name="Value" value="40.5"/>

</object>

<!--环境参数 end-->

1. 数据库的配置

默认的数据库timelapsesimulator.sql包含了4个培养皿表slide1~slide4，以及environment环境参数表，如果添加了一个培养皿slide5，则新建一张表slide5即可。