# 开发环境:

CentOS7 x64, maya2015x64, CMake, CodeBlocks

# 命令算法说明:

```
void peltOverlap::numOverlapUVFaces(const MString& shadingGroup, MStringArray&
flattenFaces)
{
	MFloatArray  face1Orig, face1Vec, face2Orig, face2Vec, center, radius;

	// Loop through face i
	unsigned int numOverlap = 0;
	createBoundingCircle(flattenFaces, center, radius);

	for(unsigned int i = 0; i < flattenFaces.length() && numOverlap < fNthPairs; i++)
	{
		// for face[i]
		//construct point and edge(line section) for face[i]
		if(!createRayGivenFace(flattenFaces[i], face1Orig, face1Vec))
		   continue;

		  // center point of face[i]
		   const float cui  = center[2*i];
		   const float cvi  = center[2*i+1];

		   //radius of face[i]
		   const float ri  = radius[i];


		   //test face[i] and other faces
		   for(unsigned int j = i+1; j < flattenFaces.length() && numOverlap < fNthPairs; j++)
		   {
			   // center point of face[j]
			   const float &cuj = center[2*j];
			   const float &cvj = center[2*j+1];

			  //radius of face[j]
			   const float &rj  = radius[j];

			   // Quick rejection if bounding circles don't overlap
			   // 如果两个线段的中心点的距离大于它们的外接圆的半径和, 则这两个线段不可能
相交
			   float du = cuj - cui;
			   float dv = cvj - cvi;
			   float dsqr = du*du + dv*dv;
			   if (dsqr >= (ri+rj)*(ri+rj))
				   continue;

			   //construct point and edge(line section) for face[j]
			   if(!createRayGivenFace(flattenFaces[j], face2Orig, face2Vec))
```

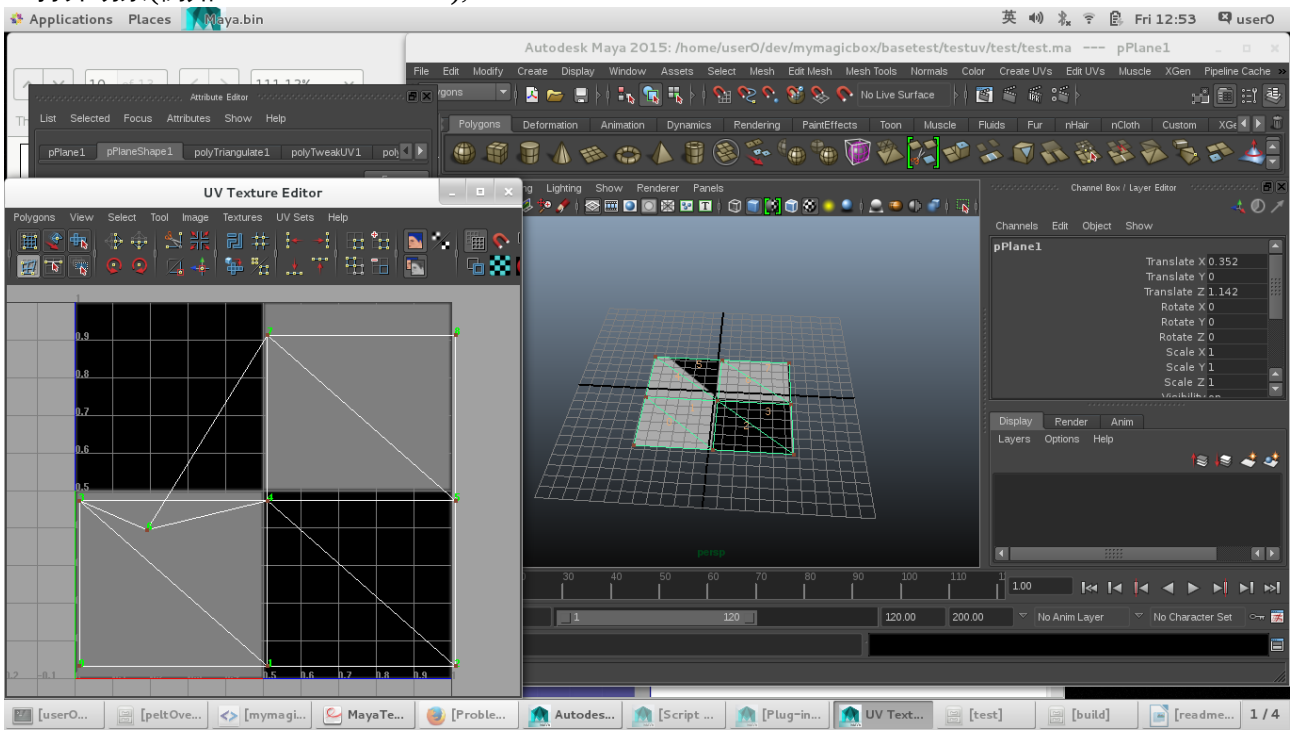
```
                continue;

                        // test if the two line sections cross with each other
                        if (checkCrossingEdges(face1Orig, face1Vec, face2Orig, face2Vec)) {
                                numOverlap++;
                                appendToResult(flattenFaces[i]);
                                appendToResult(flattenFaces[j]);
                                continue;
                        }
                }
        }
}
```

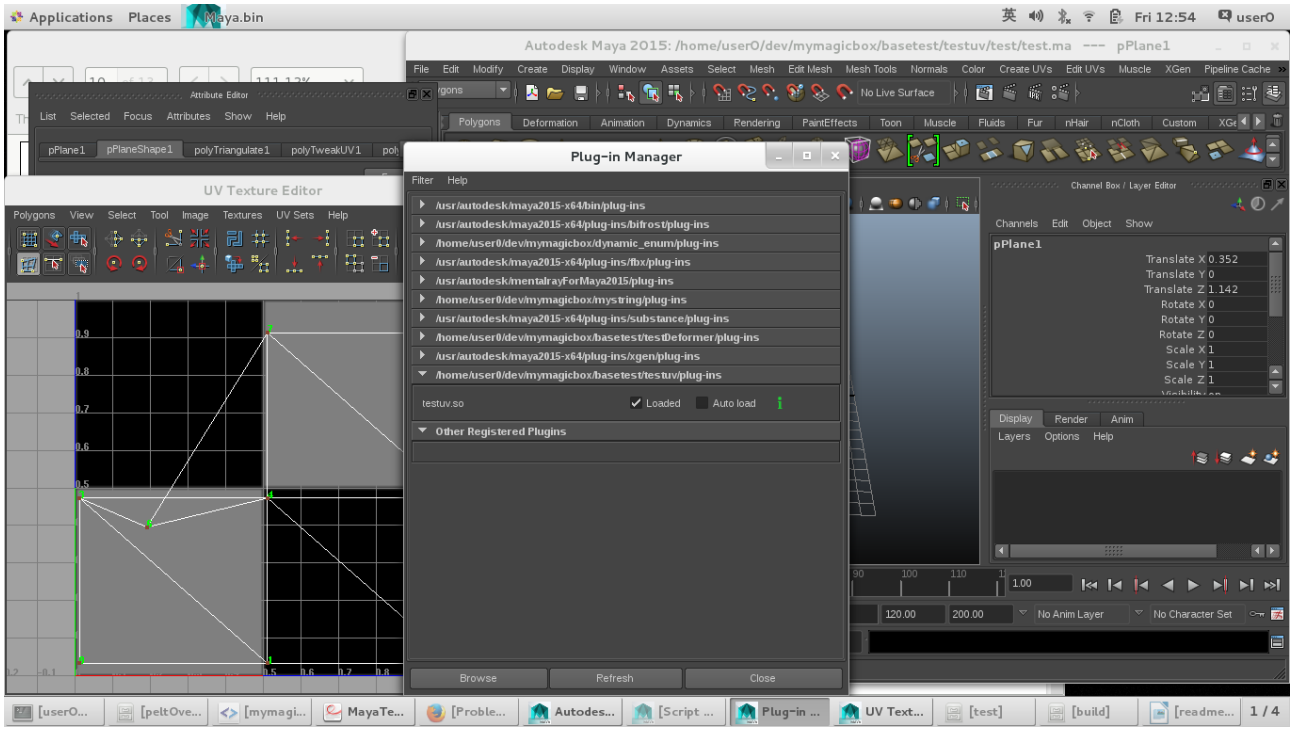
# 使用说明:

0. 复制 testuv.mod 到/home/<username>/maya/2015-x64/modules 目录下, 并修改字符串 /home/user0/dev/mymagicbox/basetest/testuv 为插件所在的根目录

1. 打开场景(例如 testuv/test/test.ma),




2. 加载插件 testuv.so




3. source 下面的 mel 函数(这些函数可以在 testuv/scripts/utility.mel 里找到)

```
proc string[] getSGsFromShape( string $shape )
{
  string $shadingEngines[];
  if ( `objExists $shape` )
  {
    string $dest[] = `listConnections -destination true -source false
      -plugs false -type "shadingEngine" $shape`;

    // listConnections can return duplicates within its list.
    // The select below is a quick trick to avoid dupes in the
    // returned array.
    if ( size( $dest ) )
    {
      string $select[] = `ls -sl`;
      select -r -ne $dest;
      $shadingEngines = `ls -sl`;
      select -r $select;
    }
  }
  return $shadingEngines;
}

proc slectTheOverlapFaces(string $sgName)
{
    select -cl;
    string $faces[] = `peltOverlapCmd $sgName`;
    select -cl;
    for($f in $faces)
    {
        select -tgl $f;
```

```
    }
}
//Example:
//string $shadingEngines[] = getSGsFromShape("pPlaneShape1");
//slectTheOverlapFaces($shadingEngines[0]);
```

4. 输入参数是 mesh 名(比如"pPlaneShape1"):

```
string $shadingEngines[] = getSGsFromShape("pPlaneShape1");
slectTheOverlapFaces($shadingEngines[0]);
```

5. 结果是如果 uv 有穿插, 那些面片就会被选择