

## 基于Treeland的窗管深度客制化

三天个月打造形似神不似的台前调度

Rubbish

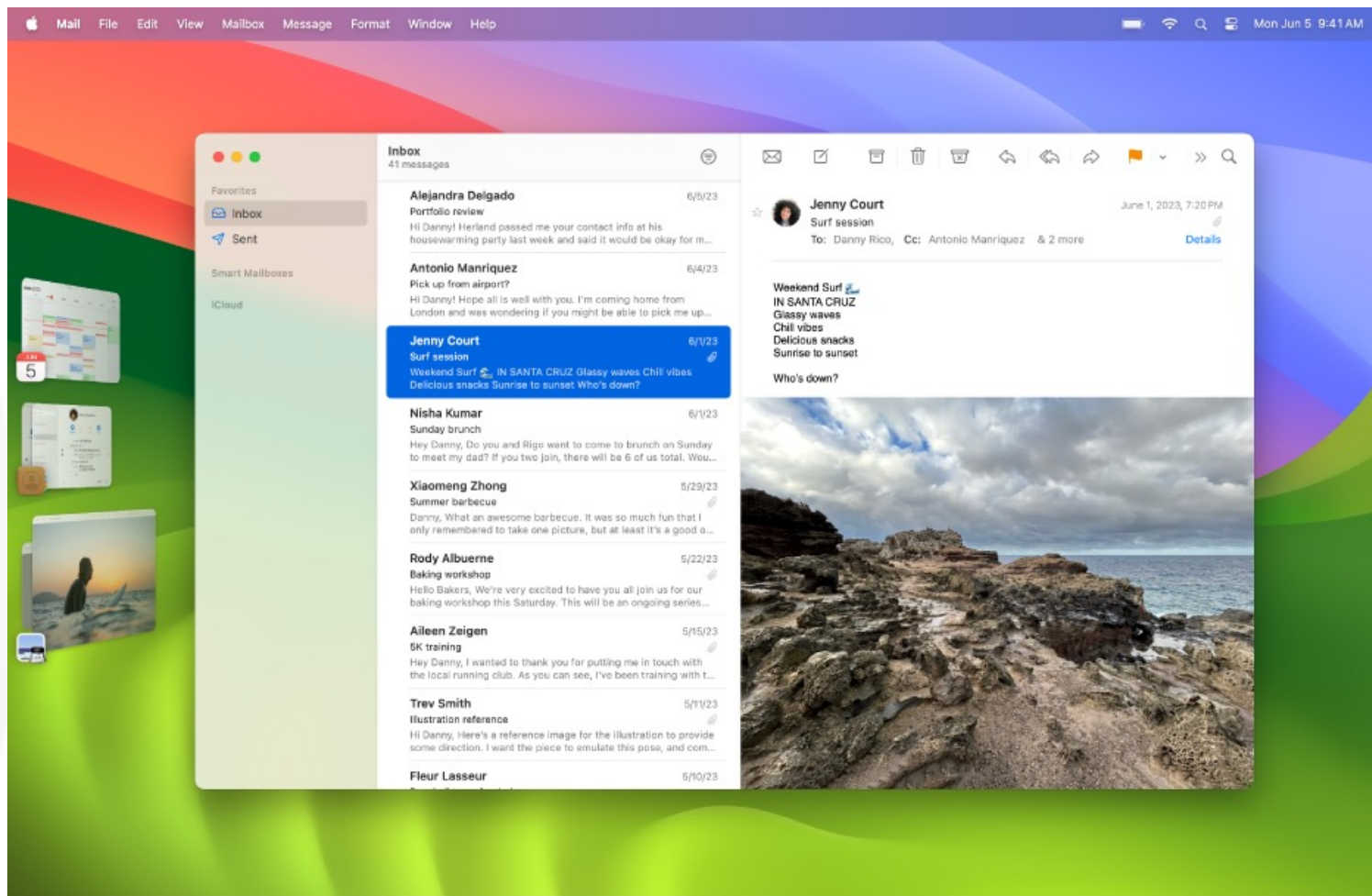
ZhongYic00@GitHub

# 路线图

- Day1 基础UI实现
- Day2 跑(不)通treeland
- Day3 进化！成为合成器的形状

# 基础UI实现

- 布局
- 2.5D特效
  - 前置知识：图形学
  - 依赖Qt3D vs 手写变换矩阵
- 交互和动效
  - 交互语义——lru栈 vs 原位替换
  - column的垂直居中？
  - To Be Continued



## 2.5D特效

- 变换矩阵

- 齐次坐标

- 透视投影 ← 旋转 ← 坐标

- 问题: Qt对Z轴不做透视变换, 只做遮挡剔除

- 依赖Qt3D vs 手写变换矩阵

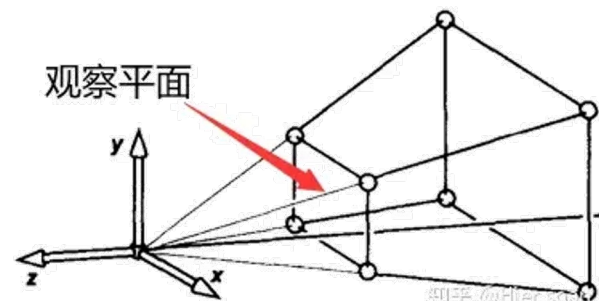
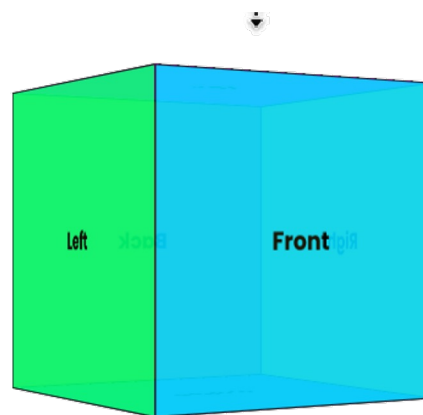
- 系统组件, 非必要不依赖

- 开源许可证问题

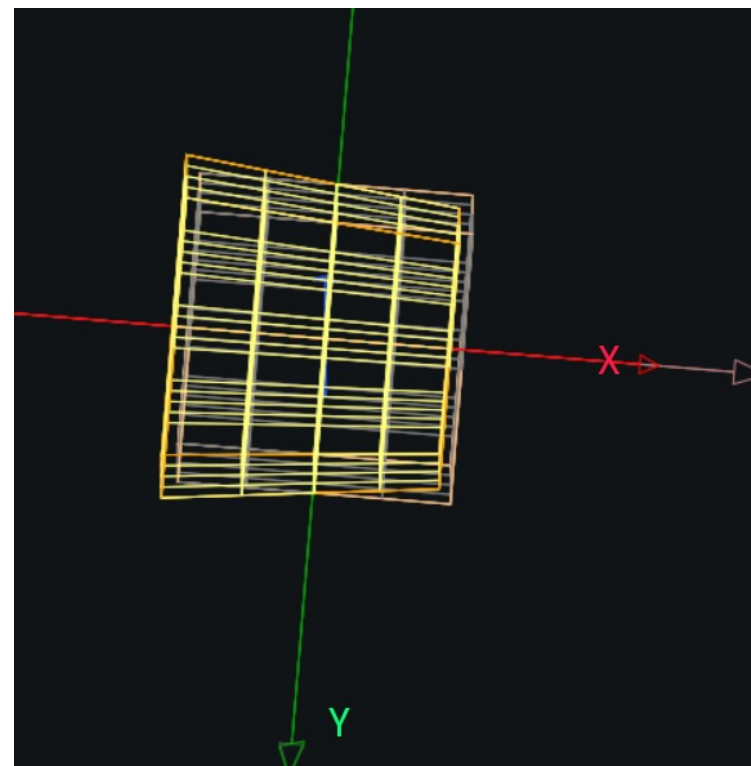
- 或许是卡bug

- 为什么同样的矩阵, 有时有效有时无效?

- 排除h,w,x,y, 竟是Repeater?



$$M_{ortho} = \begin{bmatrix} \frac{2}{r-l} & 0 & 0 & -\frac{r+l}{r-l} \\ 0 & \frac{2}{t-b} & 0 & -\frac{t+b}{t-b} \\ 0 & 0 & \frac{2}{n-f} & -\frac{n+f}{n-f} \\ 0 & 0 & 0 & 1 \end{bmatrix}$$





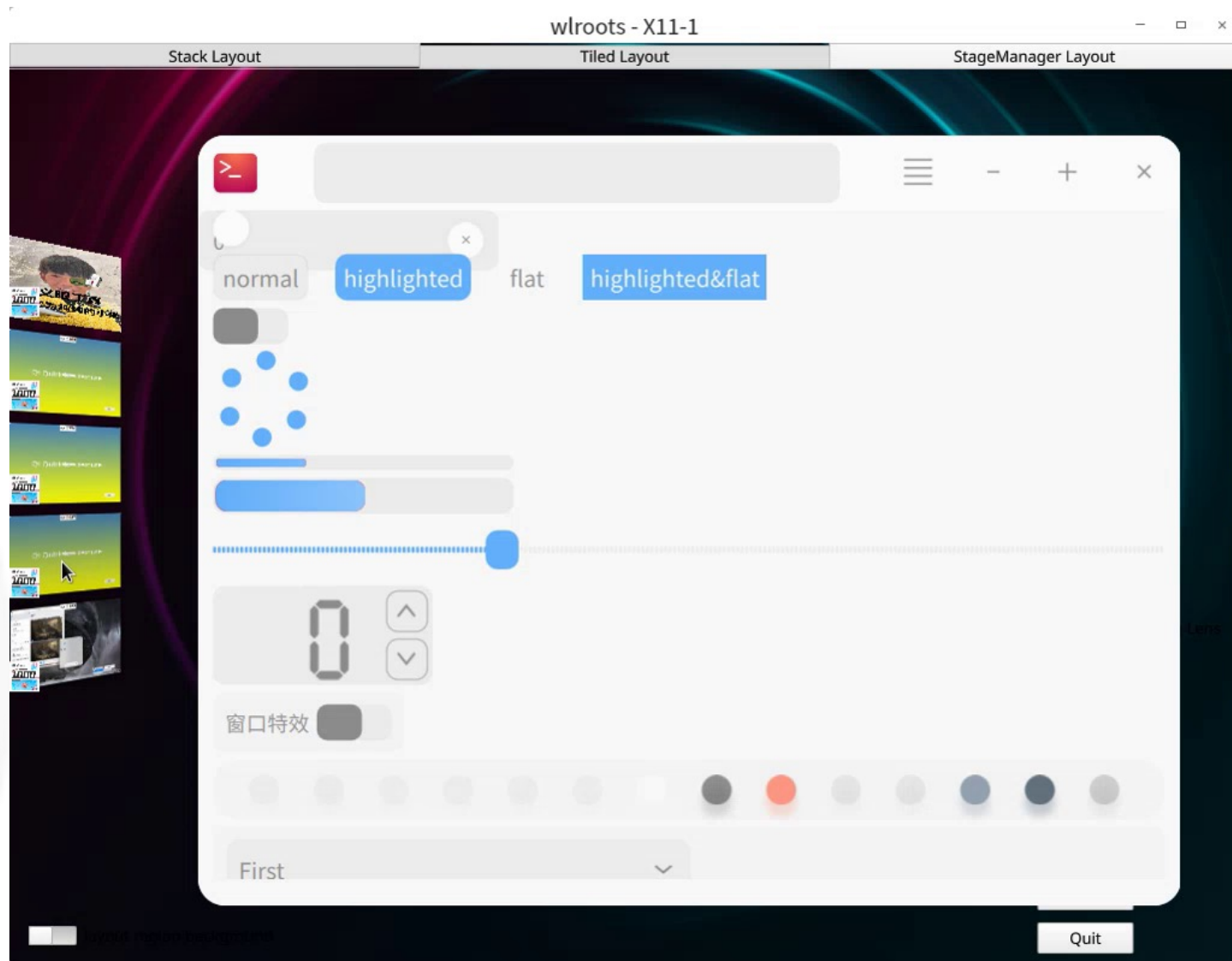
## 2.5D特效

- 变换矩阵
  - 齐次坐标
  - 透视投影 ← 旋转 ← 坐标
  - 问题: Qt对Z轴不做透视变换, 只做遮挡剔除
- 依赖Qt3D vs 手写变换矩阵
  - 系统组件, 非必要不依赖
  - 开源许可证问题
- 或许是卡bug
  - 为什么同样的矩阵, 有时有效有时无效?
  - 排除h,w,x,y, 竟是Repeater?



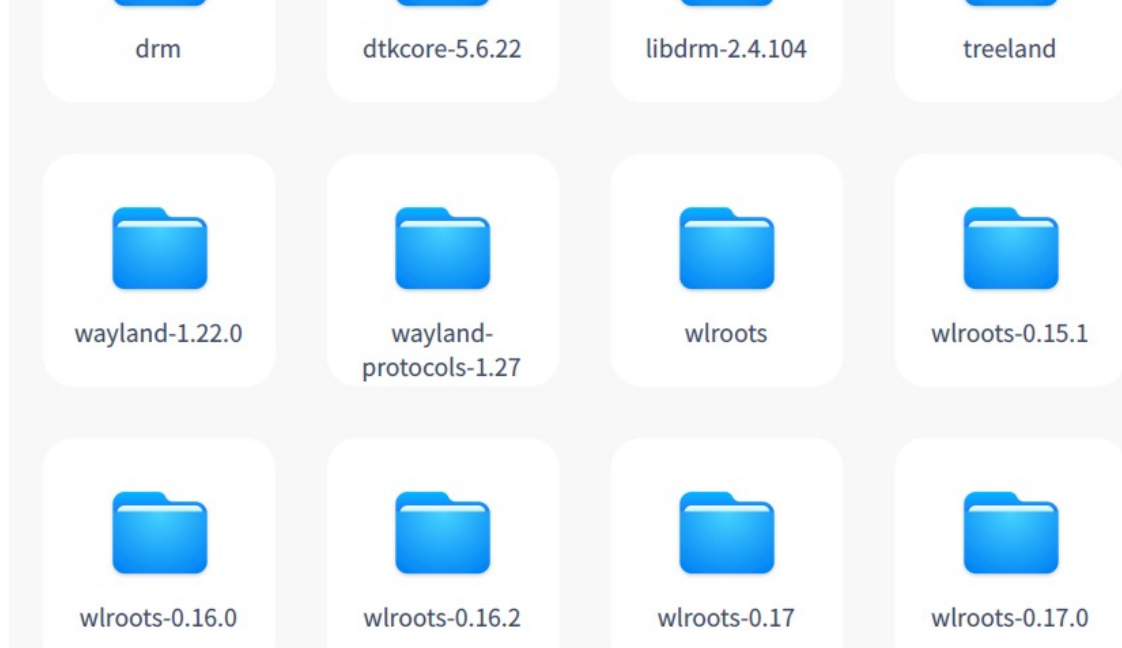
# 交互和动效

- 交互语义——lru栈 vs 原位替换
  - model增删：可能引起多model不同步？
  - 暂时使用原位替换
- column的垂直居中
  - column整体对齐
  - column高度、元素y轴动效
- To be continued
  - 展示区引入堆叠式窗管
  - 窗口、分组拖放



# 跑(不)通Treeland

- v20: 无尽的手工编译&混源
- v23: 偷懒玩坏系统
  - tty输入用户名后无密码prompt
  - 新设用户可进, 旧用户重置仍不可进
- 倒在dtk6
- tinywl, 启动!
- 消失的client
  - vioken/waylib #267
- 通过bwrap在v20中运行



ZhongYic00 commented 3 days ago

I've compiled the whole project & submodules according to instructions without any error.  
And the tinywl-qtquick binary can run and display without crash in **tty**.  
(Run as **root**, XDG\_RUNTIME\_DIR set to /run/user/\$UID, seatd.sock in /run (require root permission), wayland-0 in /tmp/runtime-\$USER/)

However, problems exist that:

- Cannot run in X11 like weston. Since wlroots-0.17.0 invokes a incompatible GBM func, I disabled it in wlroots. Don't know if this is related.

```
00:00:00.076 [render/allocator/allocator.c:146] Failed to create allocator
00:00:00.078 [backend/x11/backend.c:165] Starting X11 backend
```

- (EE) could not connect to wayland server. The client didn't start in tinywl, although the `startDemo` func returned true.

```
00:00:30.706 [INFO] [xwayland/server.c:218] Restarting Xwayland
00:00:30.711 [INFO] [wayland] wl_display_destroy_clients: cannot destroy all clients because new ones were created by
destroy callbacks
00:00:30.716 [INFO] [xwayland/server.c:108] Starting Xwayland on :3
(EE) failed to read Wayland events: Broken pipe
```

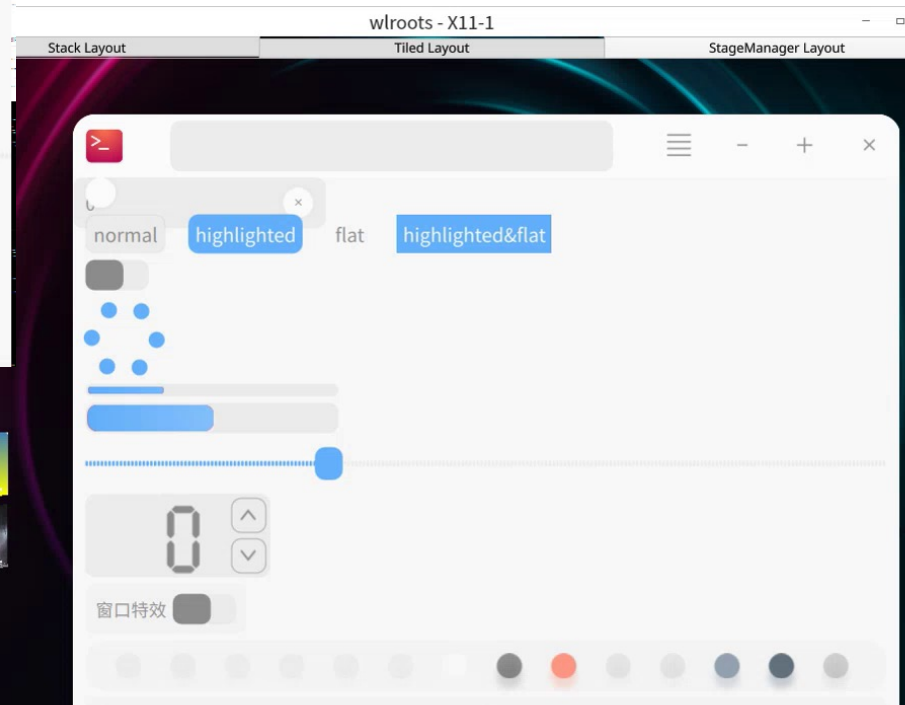
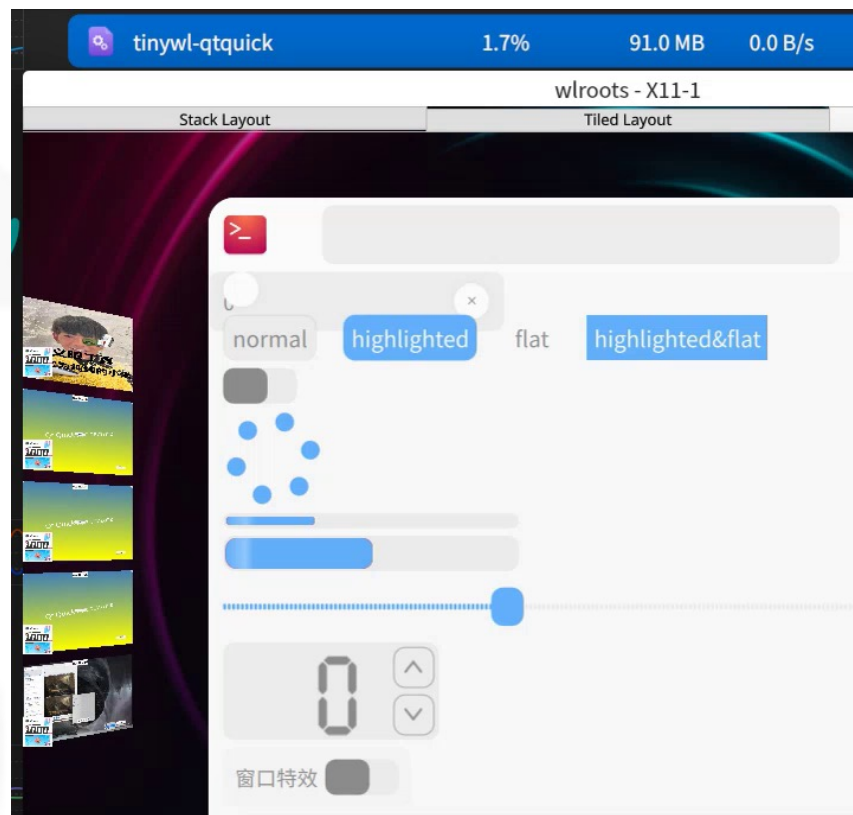
Enabling WAYLAND\_DEBUG=1 provides a little more log, but is still limited.

[logs.txt](#)  
[strace.txt](#)



# 进化！成为合成器的形状

- 缩略图
  - ShaderEffect
- 窗口隐藏
  - visible:false
  - x,y移动到可视范围外
  - hideSource, enabled, z
- 动态缩略图
  - visible不可行
  - layer不会用







# QtQuick, Martin Flöser\*用了都说好

快来魔改你的第一个窗管/合成器吧👻

\* KWin核心开发者

[Evolving 3D desktop effects in Plasma](#)