

# Delivering accurate maps to Chinese Android users 为中国安卓用户提供准确的地图服务



- Work at Mapbox includes: Android apps, demos, starter kits, documentation, support, syncing Android team with other departments, etc.

工作包括：安卓app、演示、初学者工具包、客户服务、等

- Lived in Beijing from 2011-2015  
**2011到2015，我住在北京！**

# Today's talk:

## 简报主题:

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# 1. Design

## 地图设计决策

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## 简报主题:

### 1. Design

地图设计决策

### 1. Location data

位置数据服务

# Today's talk:

## 简报主题:

### 1. Design

地图设计决策

### 1. Location data

位置数据服务

### 1. How to create an app with Mapbox

通过Mapbox，怎么开发一个安卓应用？

# Design decisions

## 地图设计决策

Does the map  
have too much  
information? Too  
little? Wrong  
type of  
information?

太多信息?  
太少?





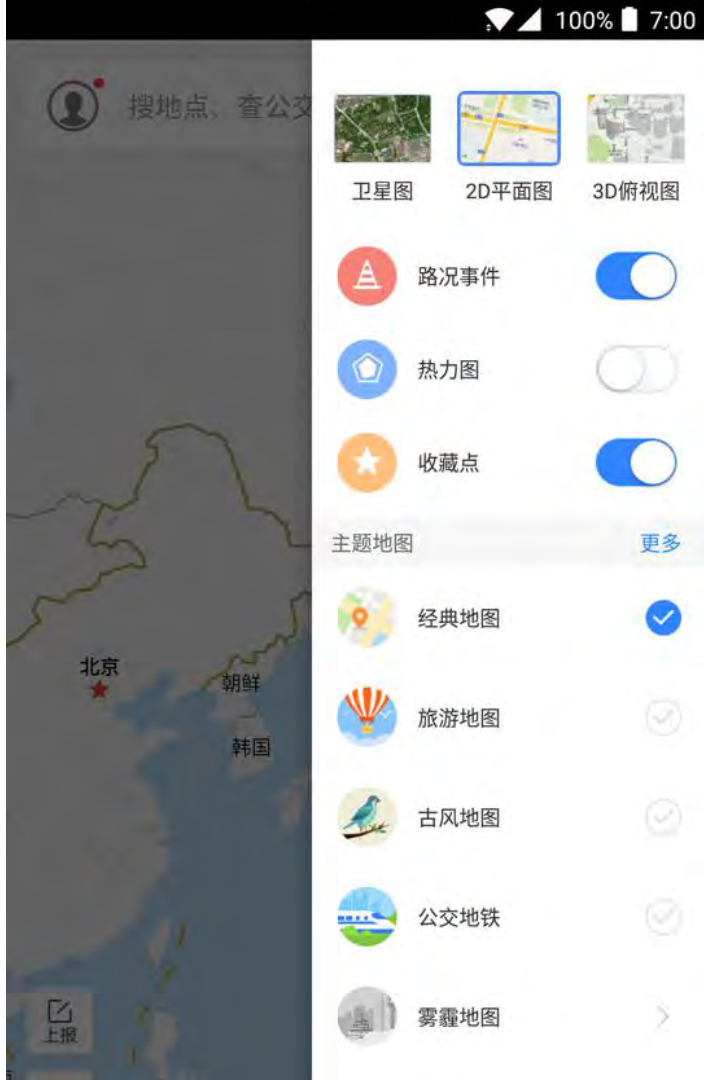
Correct zoom level for a hotel?

酒店的位置:正确的缩放级别?



Right layers and  
information? Correct  
UI/UX?

你要给用户什么  
选择?



App user has 13 choices including the map. Right amount of options? Right type?

应用用户有十三个选择。适量选择吗？说不定...



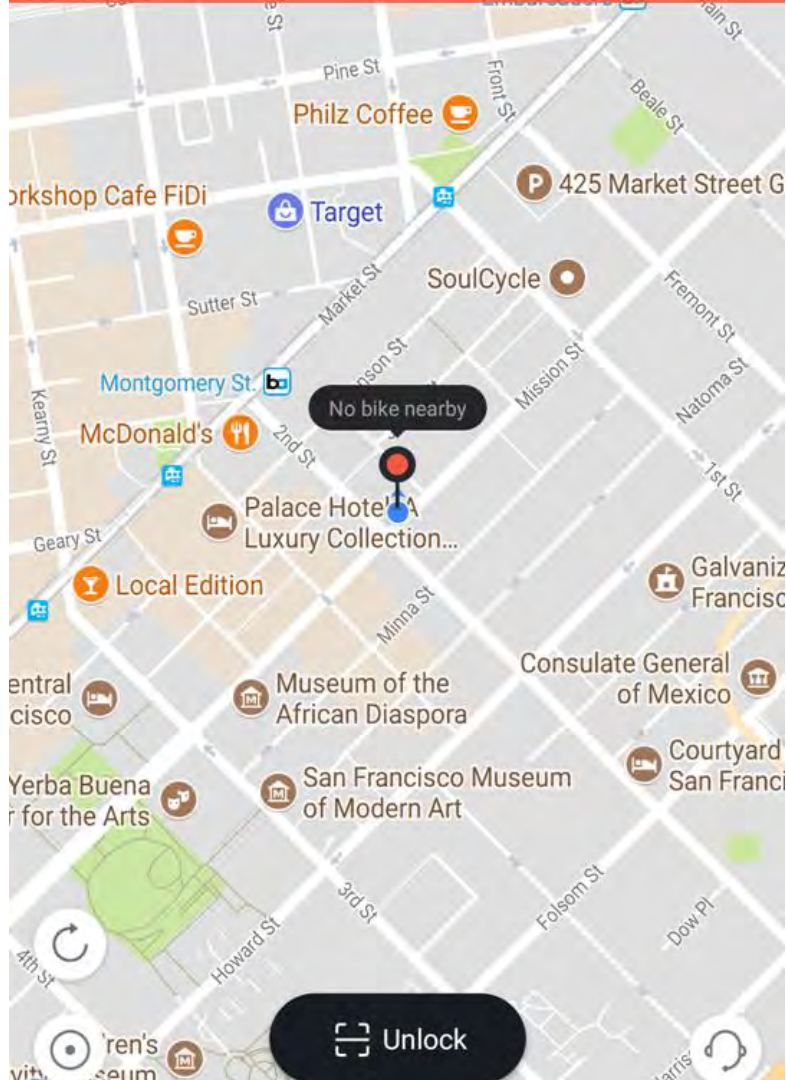
App user has 16 choices  
including the map(!)

十六个选择(!)



Right info displayed for a bicyclist?

骑自行车的人需要看什么信息？





What's important here?  
Schools? Hotel prices?  
Subway stations?

什么是重要的？大学的  
位置？酒店的价格  
？每一个地铁站？



Don't show subway lines  
if in driving mode?  
Buildings

如果开车的话，  
不用看地铁线？  
不用看每一个大  
楼？



# Marker clustering 标记群集





Static image decision  
(markers, camera position,  
etc.)

静止的地图决策（标  
记、视角位置、等）





What's the difference?  
有什么区别？



Navigation

导航→





Daily life  
日常生活→





新景家园东区



基础信息

小区品质

周边配套

楼栋户型

热门点评

小区位于东城区崇文门商圈内。小区东侧为南花市大街，南侧为广渠门内大街，西侧为崇文门外大街，北侧为西花市大街，距离...

物业公司: 北京新世  
物业电话: 010-871  
物业费: 1.14~2.48  
供暖类型: 集中供暖

### 周边配套

交通

医疗

生活

休闲

门店



小区附近就有三甲医院首都医科大学附属北京同仁医院。由于平时就诊的病患较多，医院增设了微信挂号预约平台，但是挂号仍不太容易，也可电话预约挂号。医院特色科室为眼科、耳鼻喉科划分也很细致。



关注

我是业主

咨询经纪人

# Asking for permissions


## 位置权限



大家正在搜：头顶40公斤水泥墩 减肥60斤

- #手机导购玩啥咯#
- #十九大#
- #疯狂种草季#
- 热门/超级话题

Video News Ranking list 同城



**Enable location service**

Discover people around and something new

Enable

大重 (金宝汇店)



40分钟 | 配送费0.00 | 配送地址

收货地址: null

外卖点评 商家详情



**距离太远，外卖送不到哦**

收货地址: null

查看周边外卖

换个收货地址
返回

# Location data + context

## 位置数据服务





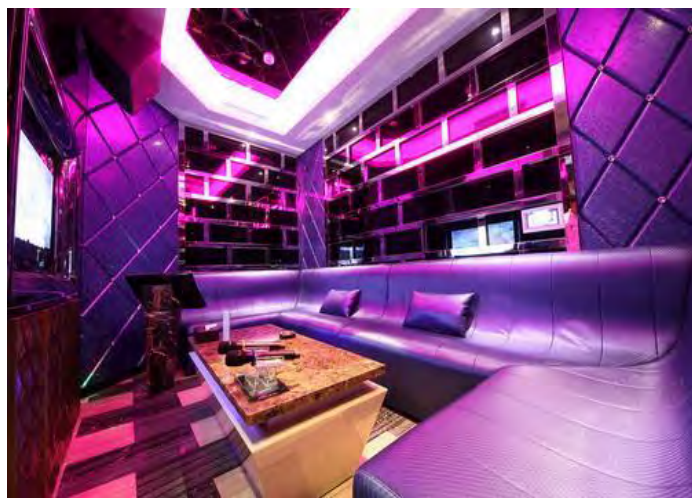
# 导航



# 位置搜索 (地理编码)



City	State	Province	Company	City Code
London	England	United Kingdom	Church Lane	4473
Stockholm	Sweden	Stockholm	111 376	4676
431 441 441	Germany	Stuttgart	Stuttgart	4971431
Wien	Austria	Vienna	Vienna	4371
2100000000	France	Paris	Paris	3311
101010101	Spain	Madrid	Madrid	3491
101010101	Italy	Rome	Rome	3906
101010101	Japan	Tokyo	Tokyo	8133
101010101	China	Beijing	Beijing	8610
101010101	USA	New York	New York	1212
101010101	India	Mumbai	Mumbai	9122
101010101	Brazil	Sao Paulo	Sao Paulo	5511
101010101	Australia	Sydney	Sydney	6121
101010101	Canada	Toronto	Toronto	1416
101010101	South Africa	Johannesburg	Johannesburg	2711
101010101	South Korea	Seoul	Seoul	8221
101010101	Thailand	Bangkok	Bangkok	6621
101010101	Vietnam	Hanoi	Hanoi	8424
101010101	Philippines	Manila	Manila	6321
101010101	Indonesia	Jakarta	Jakarta	6221
101010101	Singapore	Singapore	Singapore	6531

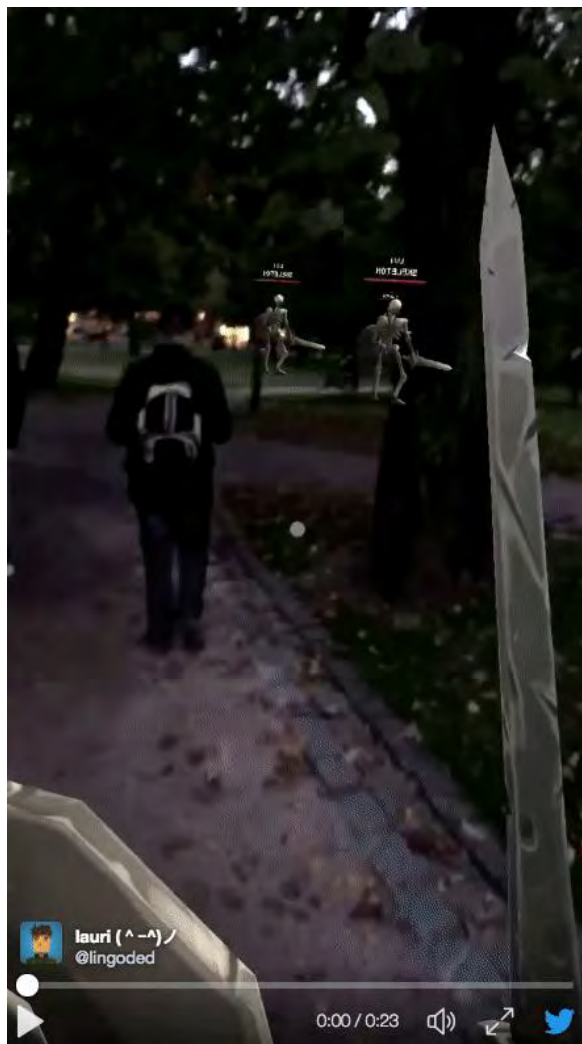
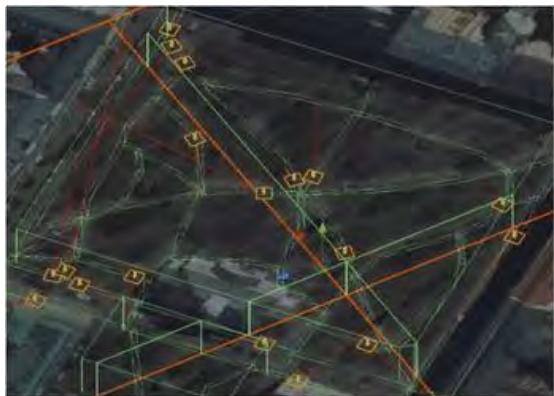




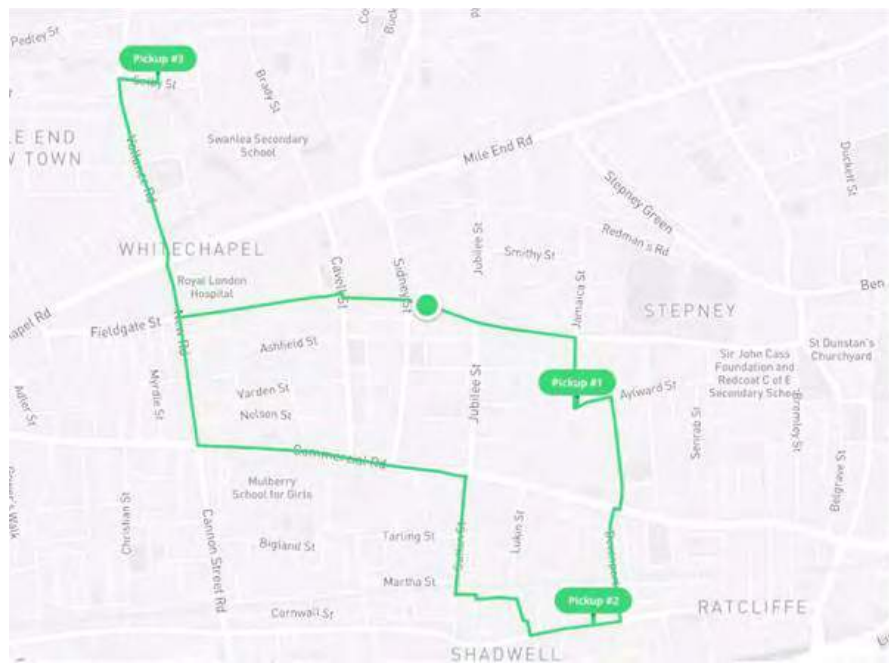
# 智能手表



# AR (增强现实) 游戏



# 物流





# 社交媒体





**mapbox**



- Location data platform for developers  
开发者而建的地图平台

- Location data platform for developers

## 开发者而建的地图平台

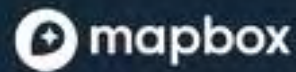
- Maps 地图

# Vector tiles + video game technology (OpenGL)

## 矢量瓦片 + 动画游戏技术



不同于传统的栅格地图  
Mapbox采用矢量地图



- Location data platform for developers

## 开发者而建的地图平台

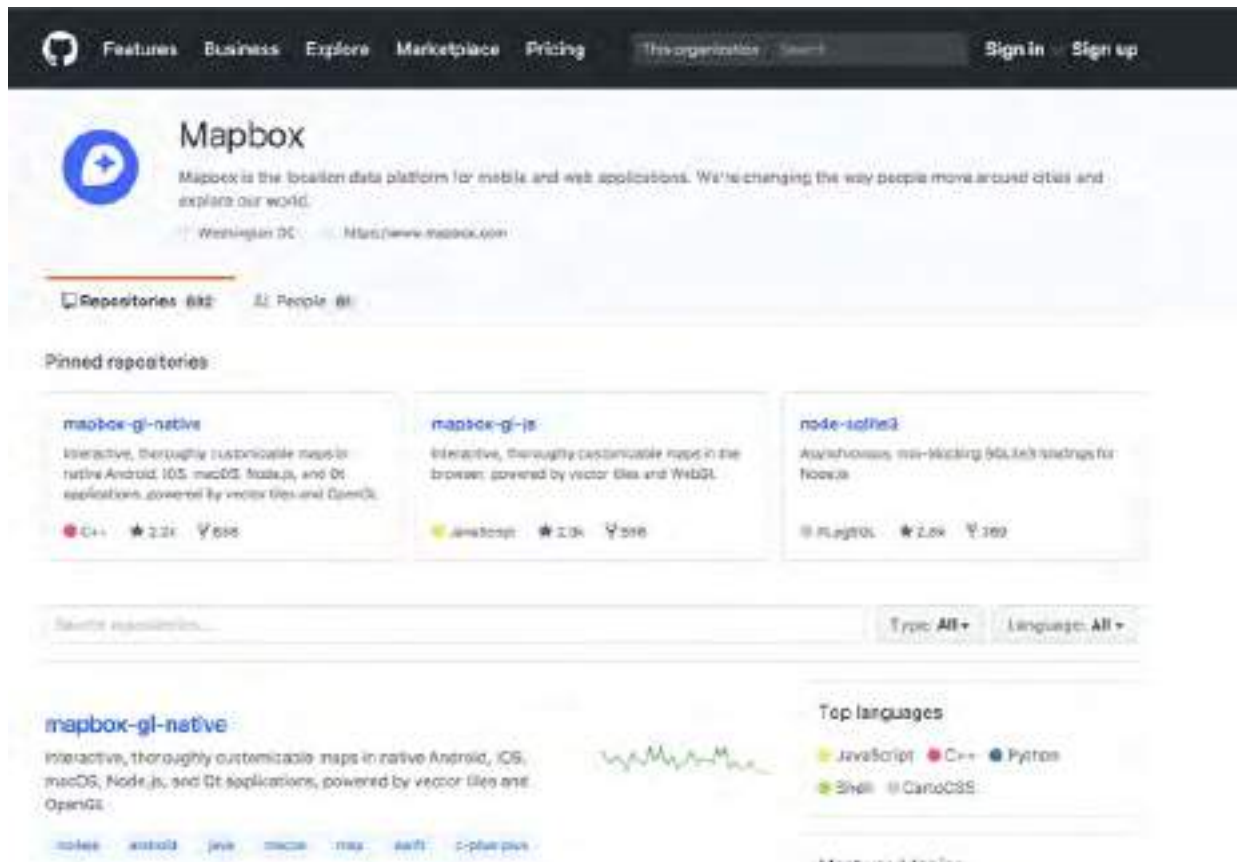
- Maps 地图
- Location search 位置搜索 (地理编码)

- Location data platform for developers

## 开发者而建的地图平台

- Maps 地图
- Location search 位置搜索 (地理编码)
- Navigation (driving, walking, biking) 导航 (开车、走路、骑车)

**Open-source tools**  
*(700 public Github repos)*  
开源的安卓产品



SDKs for Android, iOS, Unity, Qt (for cars), & React Native

软件开发包: 安卓、苹果公司、Unity、Qt (一种汽车平台)、& React Native.

## The Mapbox GL ecosystem

This repository hosts the cross-platform Mapbox GL Native library, plus convenient SDKs for several platforms. The cross-platform library comes with a [GLFW](#)-based demo application for Ubuntu Linux and macOS. The SDKs target the usual languages on their respective platforms:

SDK	Languages	Build status
<a href="#">Mapbox GL Native</a>	C++14	
<a href="#">Mapbox Android SDK</a>	Java	
<a href="#">Mapbox iOS SDK</a>	Objective-C or Swift	
<a href="#">Mapbox macOS SDK</a>	Objective-C, Swift, or AppleScript	
<a href="#">node-mapbox-gl-native</a>	Node.js	
<a href="#">Mapbox Qt SDK</a>	C++03	

Additional Mapbox GL Native-based libraries for hybrid applications are developed outside of this repository:

Toolkit	Android	iOS	Developer
<a href="#">React Native (npm)</a>			Mapbox
<a href="#">Apache Cordova (npm)</a>			Telerik
<a href="#">NativeScript (npm)</a>			Telerik
<a href="#">Xamarin</a>			Xamarin

If your platform or hybrid application framework isn't listed here, consider embedding [Mapbox GL JS](#) using the standard Web capabilities on your platform.

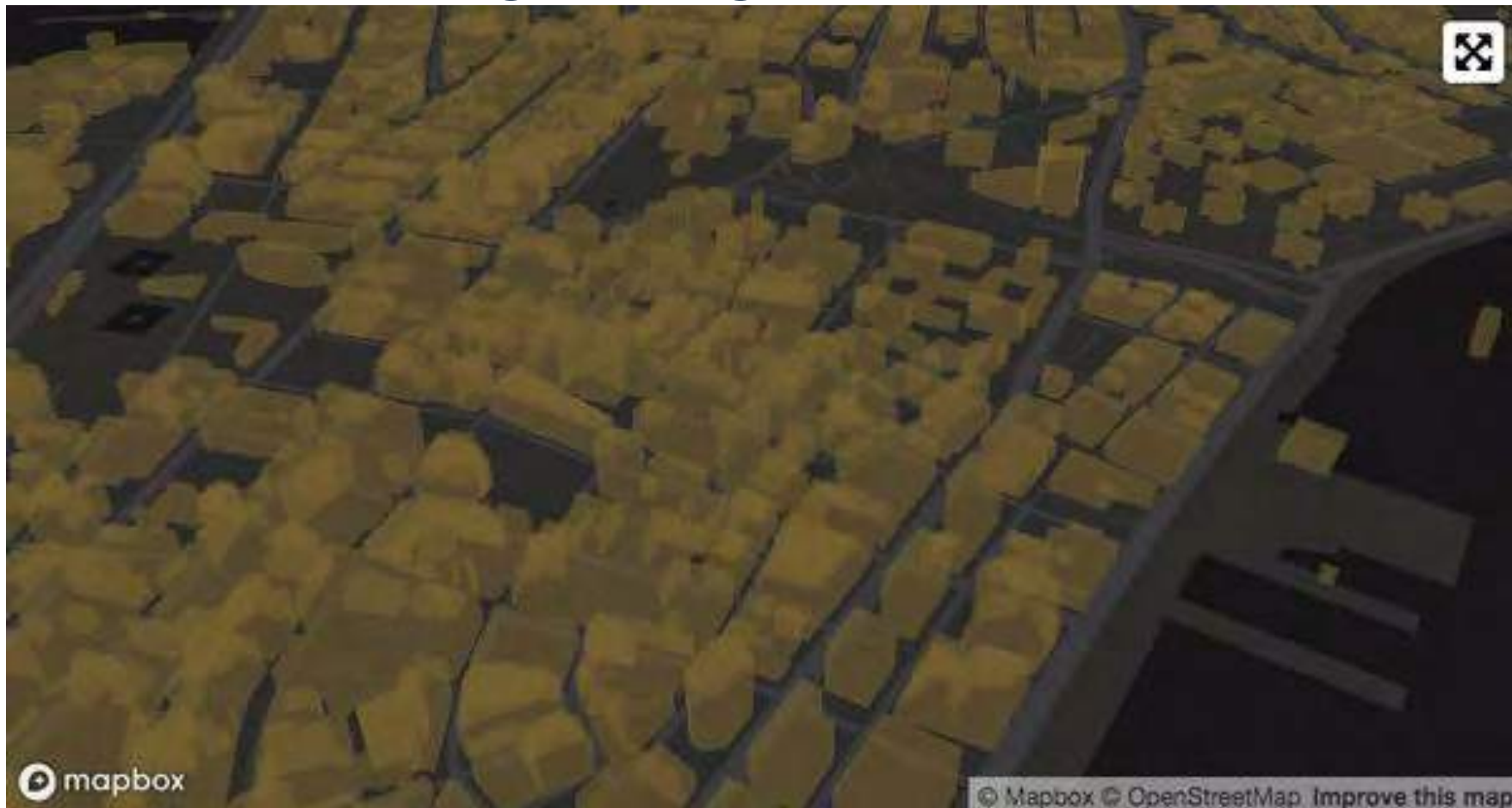


# Extrusions 三维外形





# “Dancing buildings” 三维外形 + 麦克风



# AR(Core) 增强现实



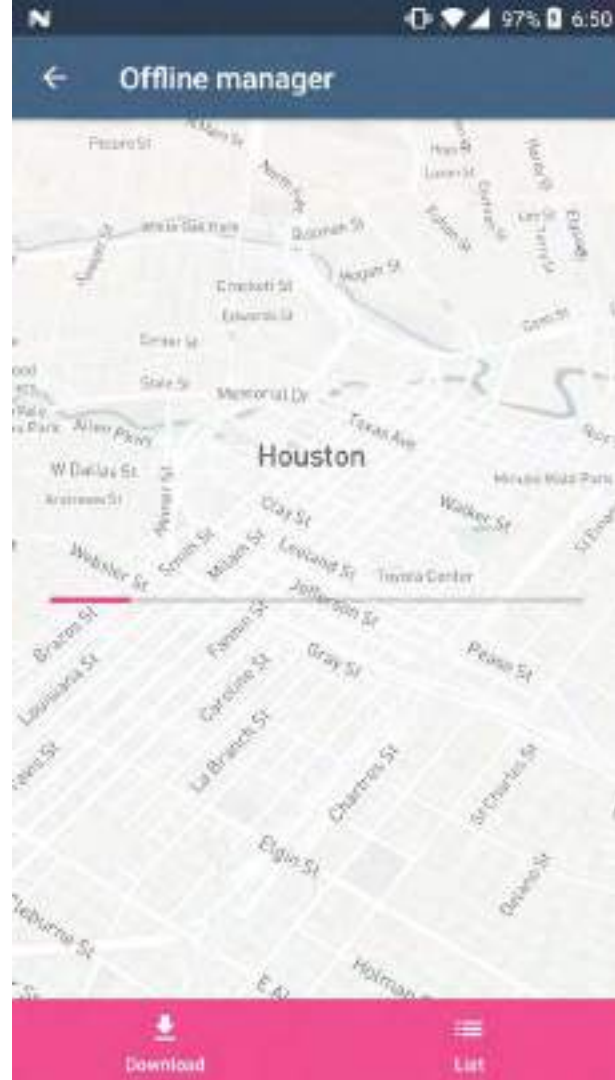
# AR(Core) 增强现实



# In-app nav 应用里导航



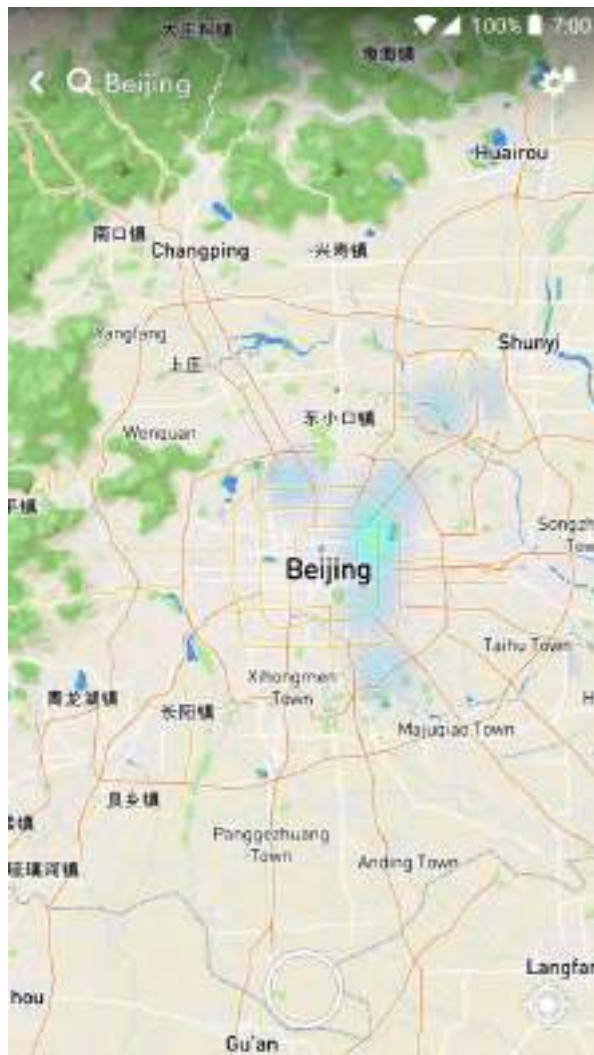
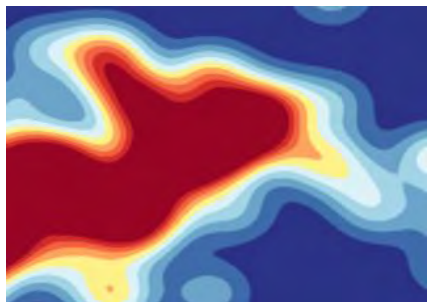
# Offline 离线下载





# Heatmaps

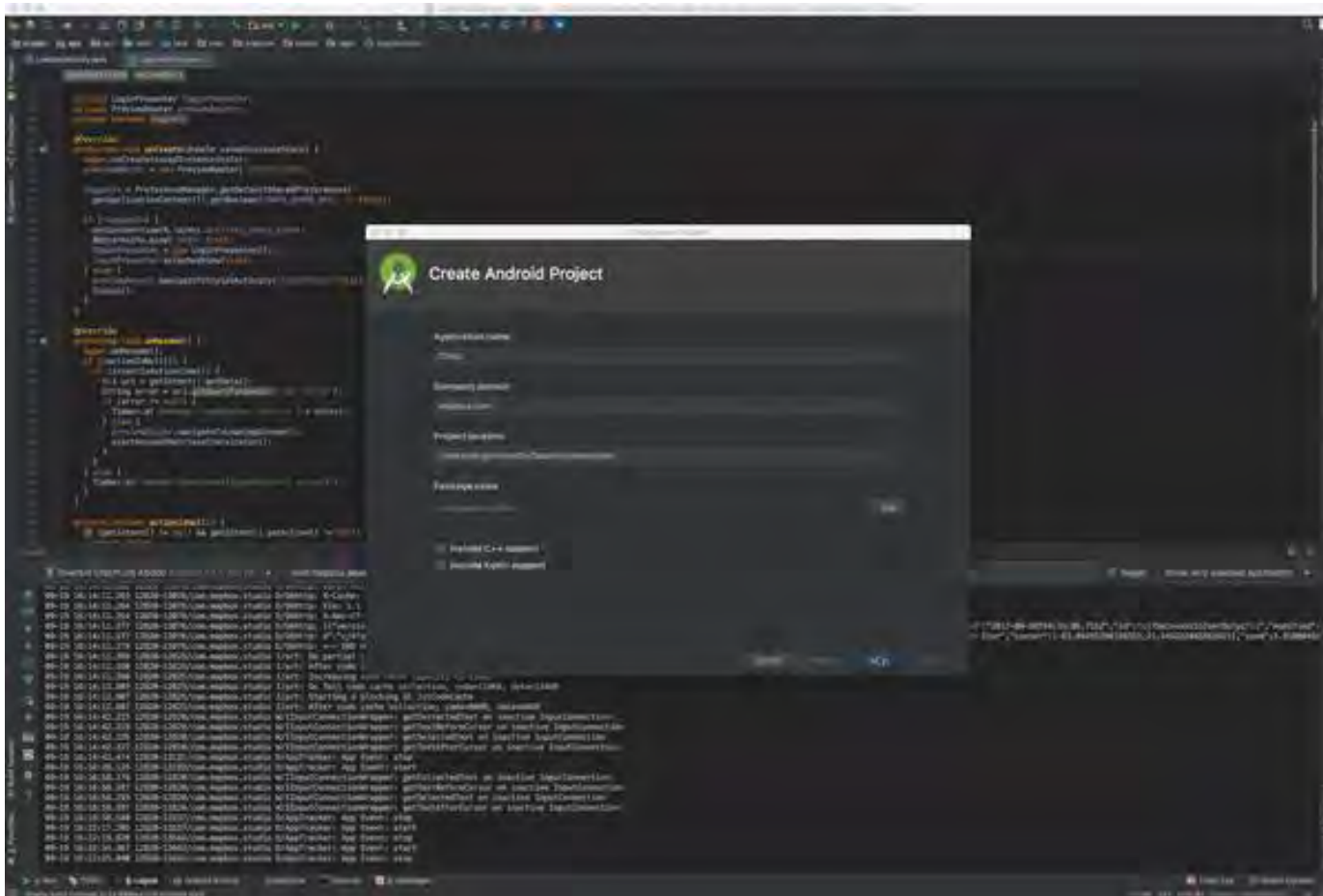
## 热点地图



**Let's build!**  
**咱们开始!**



# Set up basic project





## App-level build.gradle file

```
dependencies {
```

```
...
```

```
compile('com.mapbox.mapboxsdk:mapbox-android-sdk:5.2.0-beta.4@aar') {
```

```
    transitive = true}
```

```
...
```

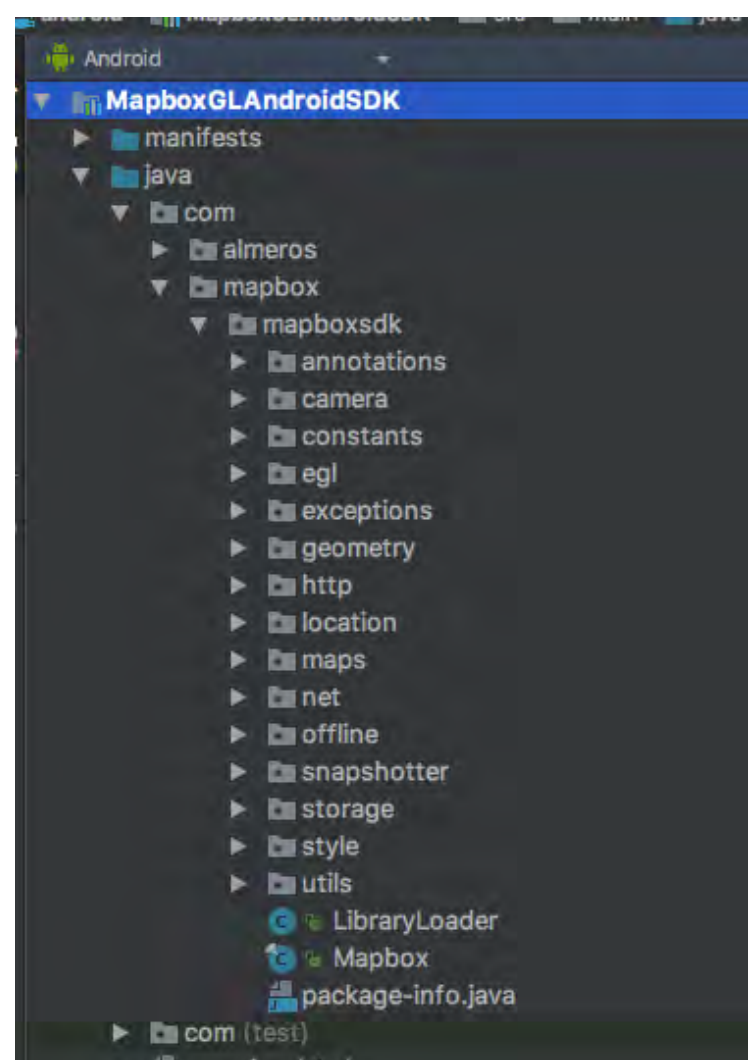
```
}
```

## App-level build.gradle file

```
dependencies {  
  ...  
  compile('com.mapbox.mapboxsdk:mapbox-android-sdk:5.2.0-beta.4@aar') {  
    transitive = true}  
  ...  
}
```

# Maps SDK size 软件开发包大小

- Less than 1MB 可能小于**1MB**
- SDKs final impact is dependent on other app decisions



# strings.xml file 字符串的文件

Add your key to the strings file  
加你**Mapbox**的访问令牌

```
<resources>
```

```
...
```

```
<string name="access_token">MAPBOX_ACCESS_TOKEN</string>
```

```
...
```

```
</resources>
```

**Your first 50,000 mobile users are free!**  
你前面五万的移动用户是免费的!

# XML layout file – XML布局文件

<RelativeLayout

xmlns:android="http://schemas.android.com/apk/res/android"

xmlns:mapbox="http://schemas.android.com/apk/res-auto"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent" >

<com.mapbox.mapboxsdk.maps.MapView

android:id="@+id/mapview"

android:layout\_width="match\_parent"

android:layout\_height="match\_parent"/>

</RelativeLayout>

# Additional map XML attributes – 更多XML属性

```
<com.mapbox.mapboxsdk.maps.MapView
    android:id="@+id/mapview"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    mapbox:mapbox_cameraTargetLat="19.948045"
    mapbox:mapbox_cameraTargetLng="-84.654463"
    mapbox:mapbox_cameraZoom="3.371717"
    mapbox:mapbox_cameraTilt="50"
    mapbox:mapbox_styleUrl="@string/mapbox_style_mapbox_streets"/>
```

More XML attributes – 更多XML属性

[github.com/mapbox/mapbox-gl-native/blob/master/platform/android/MapboxGLAndroidSDK/src/main/res/values/attrs.xml](https://github.com/mapbox/mapbox-gl-native/blob/master/platform/android/MapboxGLAndroidSDK/src/main/res/values/attrs.xml)

# Activity file – Activity文件

```
public class MainActivity extends AppCompatActivity {
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        Mapbox.getInstance(this, getString(R.string.access_token));
```

```
        setContentView(R.layout.activity_main);
```

```
    }
```

```
public class MainActivity extends AppCompatActivity {  
    private MapView mapView;  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        Mapbox.getInstance(this, getString(R.string.access_token));  
        setContentView(R.layout.activity_main);  
        mapView = (MapView) findViewById(R.id.runtime_mapview);  
        mapView.onCreate(savedInstanceState);  
        mapView.getMapAsync(new OnMapReadyCallback() {  
            @Override  
            public void onMapReady(final MapboxMap mapboxMap) {  
                // Customize map with markers, polylines, etc.  
  
            }  
        });  
    }  
}
```



# Method overrides

## 重写此方法

```
@Override
public void onResume() {
    super.onResume();
    mapView.onResume();
}
```

```
@Override
protected void onStart() {
    super.onStart();
    mapView.onStart();
}
```

```
@Override
protected void onStop() {
    super.onStop();
    mapView.onStop();
}
```

```
@Override
public void onPause() {
    super.onPause();
    mapView.onPause();
}
```

```
@Override
public void onLowMemory() {
    super.onLowMemory();
    mapView.onLowMemory();
}
```

```
@Override
protected void onDestroy() {
    super.onDestroy();
    mapView.onDestroy();
}
```

```
@Override
protected void onSaveInstanceState(Bundle outState) {
    super.onSaveInstanceState(outState);
    mapView.onSaveInstanceState(outState);
}
```

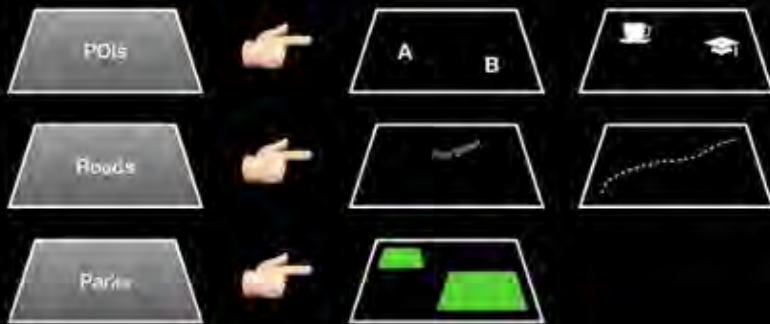
The result!  
结果!



# Run-time styling

## 运行时地图模式

Data Layers 🖱️ Style Layers



Data Layers 🖱️ Style Layers





```
mapView.onCreate(savedInstanceState);
mapView.getMapAsync(new OnMapReadyCallback() {
    @Override
    public void onMapReady(final MapboxMap mapboxMap) {

        final Layer waterLayer = mapboxMap.getLayer("water");

    });
}
```

```
mapView.onCreate(savedInstanceState);
mapView.getMapAsync(new OnMapReadyCallback() {
    @Override
    public void onMapReady(final MapboxMap mapboxMap) {

        final Layer waterLayer = mapboxMap.getLayer("water");

        findViewById(R.id.floatingActionButton).setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (waterLayer != null) {
                    waterLayer.setProperties(PropertyFactory.fillColor(Color.parseColor("#023689")));
                }
            }
        });
    }
});
```



```
mapView.onCreate(savedInstanceState);
mapView.getMapAsync(new OnMapReadyCallback() {
    @Override
    public void onMapReady(final MapboxMap mapboxMap) {

        final Layer waterLayer = mapboxMap.getLayer("water");

        findViewById(R.id.floatingActionButton).setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (waterLayer != null) {
                    waterLayer.setProperties(PropertyFactory.fillColor(Color.parseColor("#023689")));
                }
            }
        });
    }
});
```

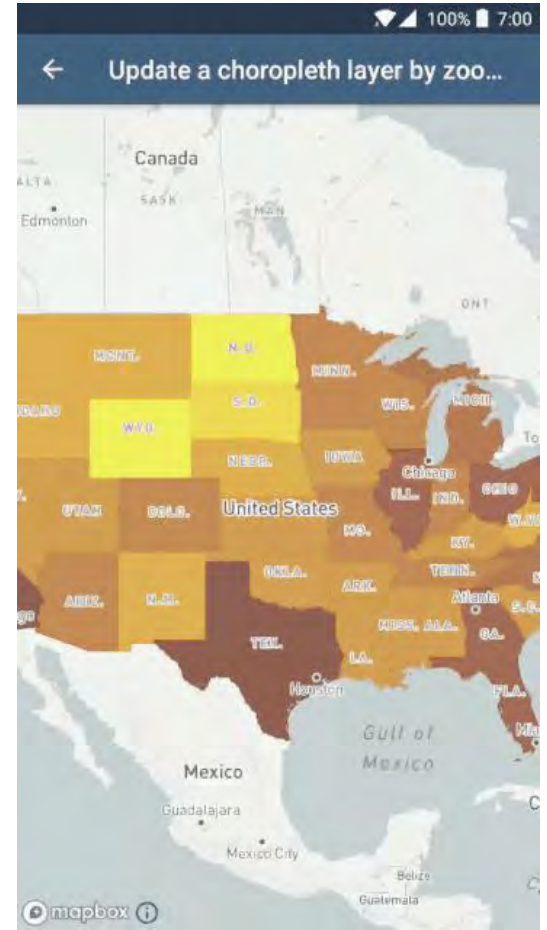
```
findViewById(R.id.floatingActionButton).setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        if (waterLayer != null) {  
            waterLayer.setProperties(PropertyFactory.fillColor(Color.parseColor("#023689")));  
        }  
  
        for (Layer singleMapLayer : mapboxMap.getLayers()) {  
            if (singleMapLayer.getId().contains("marine")) {  
                singleMapLayer.setProperties(  
                    PropertyFactory.textHaloBlur(10f),  
                    PropertyFactory.textSize(25f),  
                    PropertyFactory.textColor(Color.parseColor("#00FF08")),  
                    PropertyFactory.textOpacity(1f));  
            }  
        }  
    }  
});
```

```
findViewById(R.id.floatingActionButton).setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View v) {  
        if (waterLayer != null) {  
            waterLayer.setProperties(PropertyFactory.fillColor(Color.parseColor("#023689")));  
        }  
  
        for (Layer singleMapLayer : mapboxMap.getLayers()) {  
            if (singleMapLayer.getId().contains("marine")) {  
                singleMapLayer.setProperties(  
                    PropertyFactory.textHaloBlur(10f),  
                    PropertyFactory.textSize(25f),  
                    PropertyFactory.textColor(Color.parseColor("#00FF08")),  
                    PropertyFactory.textOpacity(1f));  
            }  
        }  
    }  
});
```

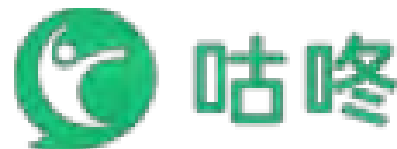
# Retrieving a single map style's layer names

```
mapView.onCreate(savedInstanceState);  
mapView.getMapAsync(new OnMapReadyCallback() {  
    @Override  
    public void onMapReady(final MapboxMap mapboxMap) {  
  
        for (Layer singleMapLayer : mapboxMap.getLayers()) {  
            Log.d("MainActivity", "onMapReady: layer name = " + singleMapLayer.getId());  
        }  
  
    });  
}
```

# Data-driven styling



## Some current customers – 现有的客户





**Want to learn more?**

**你想了解更多吗？**

# Android documentation 技术资料

[mapbox.com/android-docs](https://mapbox.com/android-docs)

中文资料: [mapbox.cn/help/first-steps-android-sdk/](https://mapbox.cn/help/first-steps-android-sdk/)

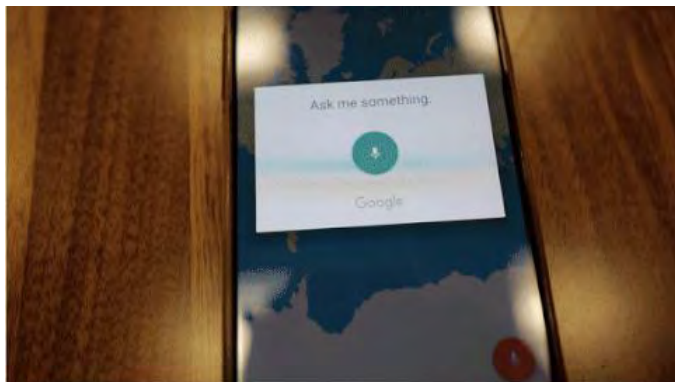
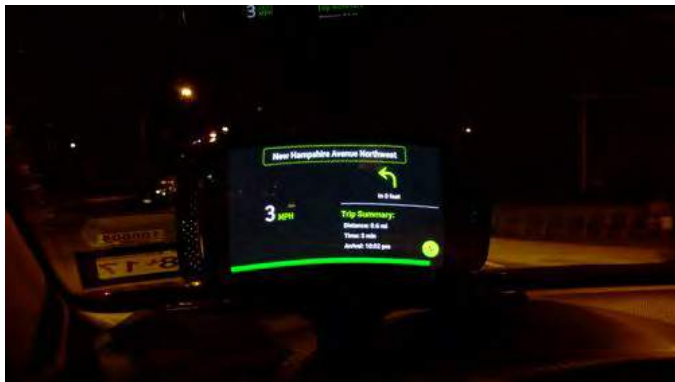
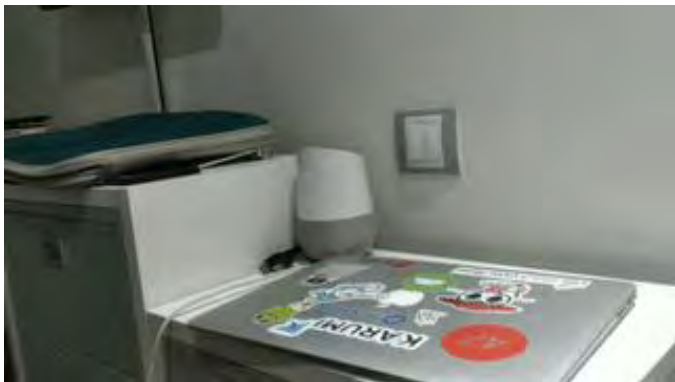
&

[mapbox.cn/android-sdk](https://mapbox.cn/android-sdk)

The screenshot shows the Mapbox Android SDK documentation page. At the top, there are navigation links for "Overview", "Examples", and "Tutorials". The main content area features a green header with the "Map SDK" title and a sub-header "Current Version: v5.2.0-beta.2". Below this, there are several features listed with checkmarks: "Live traffic", "Annotations", "Offline support", "Runtime styling", and "3D extrusions". A "Contribute on GitHub" link is also present. The page includes a large image of two smartphones displaying the Mapbox app interface. Below the image, there is a paragraph of text: "The Mapbox Android Map SDK is an open source toolset for displaying maps inside of your Android application. Mapbox's demo app on the Google Play Store includes many examples of how to use Mapbox Maps. Various pages in this documentation reference examples in the demo app." The "Install the Map SDK" section is partially visible at the bottom, starting with the text: "Before starting to develop your application with the Map SDK, you'll need to add the SDK as a dependency. You can find the following dependency given below in the MavenCentral repository. While this document shows how to install the SDK through gradle, we also offer". A "Begin installation now" button is also visible.

Blog 博客  
[blog.mapbox.com](http://blog.mapbox.com)

微信公众号: Mapbox



# Location + context

最后，位置数据服务是最重要的