

# REVERSE ENGINEERING



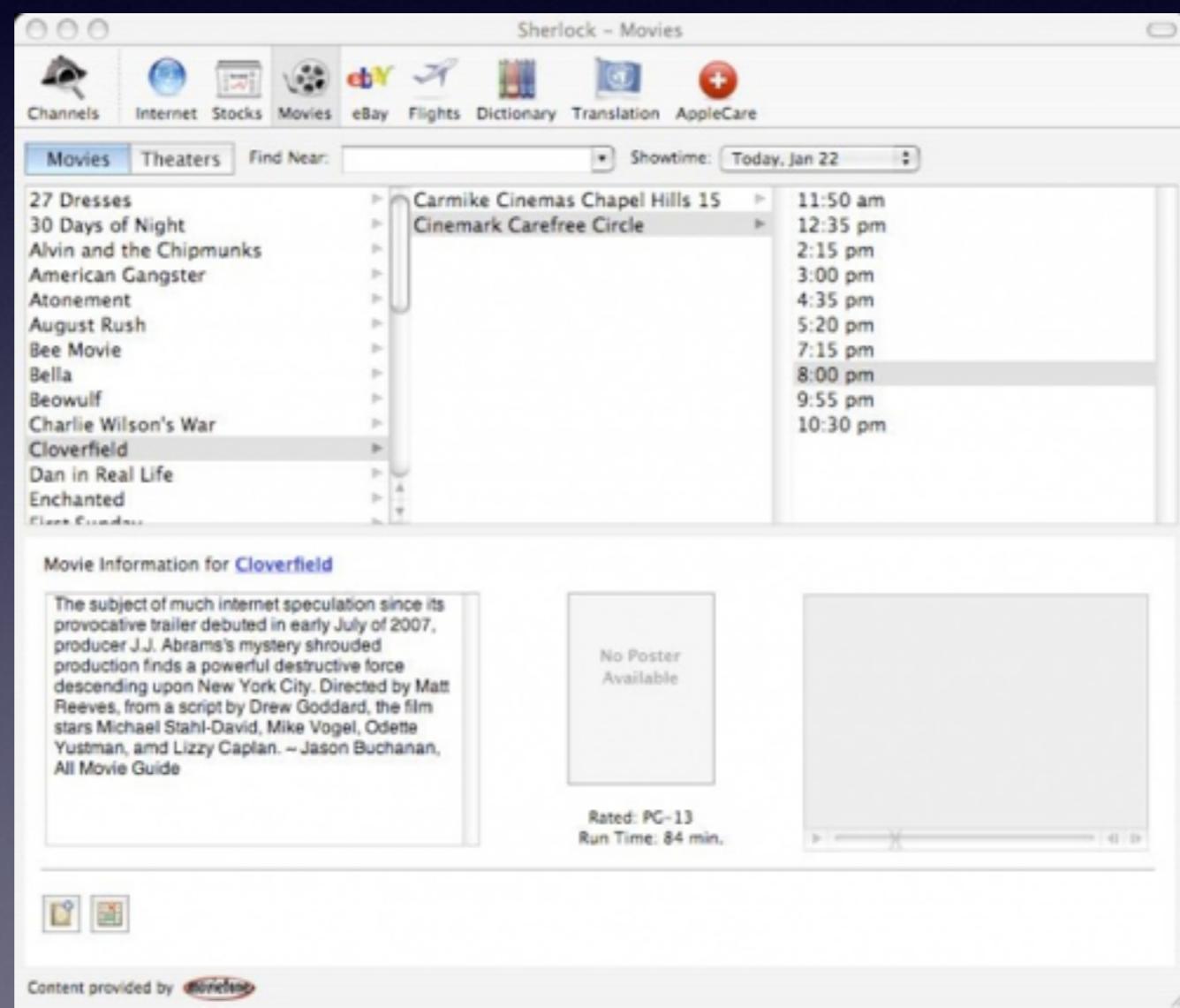
**LOOK  
INVESTIGATE  
REBUILD**

# WHY?



"We've been  
shameless  
about stealing  
great ideas"

# SHERLOCKED





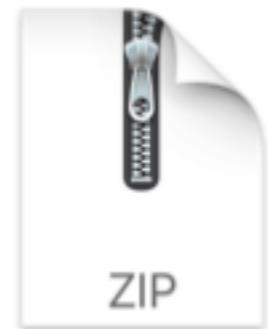
# HOW?





IPA

**SECRET ZIP**



Instagram 7.17.1.zip



Instagram 7.17.1



iTunesArtwork



iTunesMetadata.plist



META-INF

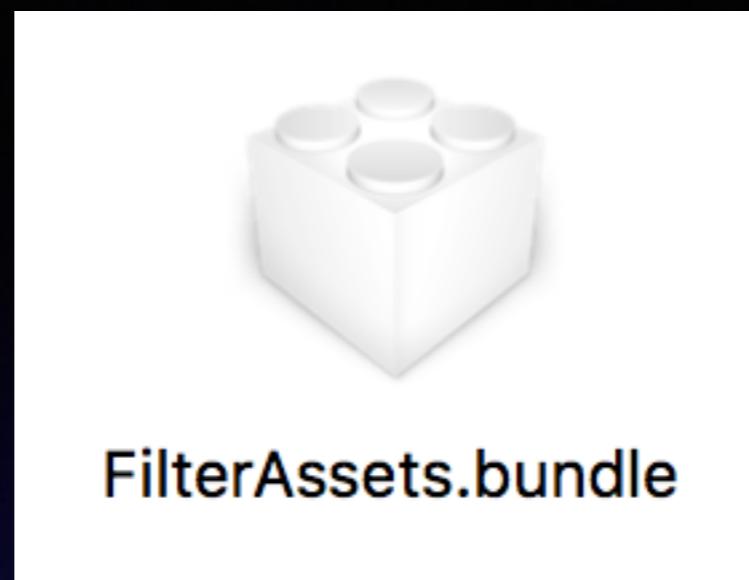


Payload

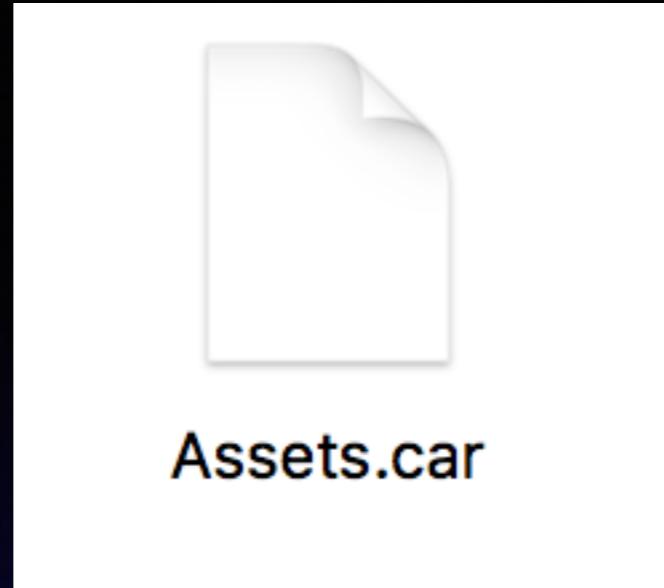


Instagram

►	_CodeSignature	29 Feb 2
	Assets.car	29 Feb 2
	boomerang-sample.mp4	29 Feb 2
►	cs.iproj	29 Feb 2
►	da.iproj	29 Feb 2
►	de.iproj	29 Feb 2
	Default-568h@2x.png	29 Feb 2
	Default-667h@2x.png	29 Feb 2
	Default-736h@3x.png	29 Feb 2
	Default-instagram-capture-320h@2x.png	29 Feb 2
	Default-instagram-capture-568h@2x.png	29 Feb 2
	Default-instagram-capture-667@2x.png	29 Feb 2
	Default-instagram-capture-736h@3x.png	29 Feb 2
	Default.png	29 Feb 2
	Default@2x.png	29 Feb 2
►	el.iproj	29 Feb 2
►	en-GB.iproj	29 Feb 2
►	en.iproj	29 Feb 2
►	es-ES.iproj	29 Feb 2
►	es.iproj	29 Feb 2
	feed-find-people@2x.jpg	29 Feb 2
	feed-find-people@3x.jpg	29 Feb 2
►	fi.iproj	29 Feb 2
	FilterAssets.bundle	29 Feb 2
►	fr.iproj	29 Feb 2
	FreightSansPro-Light.otf	29 Feb 2
	FreightSansPro-Medium.otf	29 Feb 2
	FreightSansPro-Semibold.otf	29 Feb 2
	Icon-57.png	29 Feb 2
	Icon-57@2x.png	29 Feb 2
	Icon-57@3x.png	29 Feb 2
	Icon-60@2x.png	29 Feb 2



bw_vintage_curves1.png	bw_vintage_curves2.png	chic_curves1.png	chic_curves2.png	classy_look_levels2.png	classy_look_tonemap1.png	crema_map.png	crossprotwo_curves.png
earlybirdBlowout.png	earlybirdBorder.png	earlyBirdCurves.png		earlybirdMap.png	earlybirdOverlayMap.png	edgeBurn.pvr	empire_map.png
epic_2.png	filterBorderPlainWhite.png	Glacial1.png	Glacial2.png	glowField.png	hefeBorder.png	hefeGradientMap.png	hefeMap.png
hefeMetal.pvr	hefeSoftLight.png	hudsonBackground.pvr	hudsonBorder.png	hudsonMap.png	inkwellMap.png	juno_map.png	kelvinBorder.png



<https://github.com/steventroughtonsmith/cartool>



insights~iphone.p  
n  
g



insights~iphone@  
2x.  
png



InstagramUploadico  
n~iphone.png



InstagramUploadico  
n~iphone@2x.png



interests~iphone.p  
n  
g



interests~iphone@2  
x.  
png



ip4-  
holder~iph...  
ne.png



ip4-  
holder~ip...@2x.  
png



itemError~iphon  
e.png



itemError~iphon  
e@2x.  
png



layout-banner-  
icon~iphone.png



layout-banner-  
icon~iph...e@2x.  
png



like~iphon  
e.png



like~iphone@2x.  
png



liked~iphon  
e.png



liked~iphon  
e@2x.  
png



likemetaheart~iph  
one.png



likemetaheart~iph  
one@2x.png



location-  
clear~iphon  
e.png



location-  
clear~iph...e@2x.  
png



location-pin-  
active~iphon  
e.png



location-pin-  
active~iph...@2x.  
png



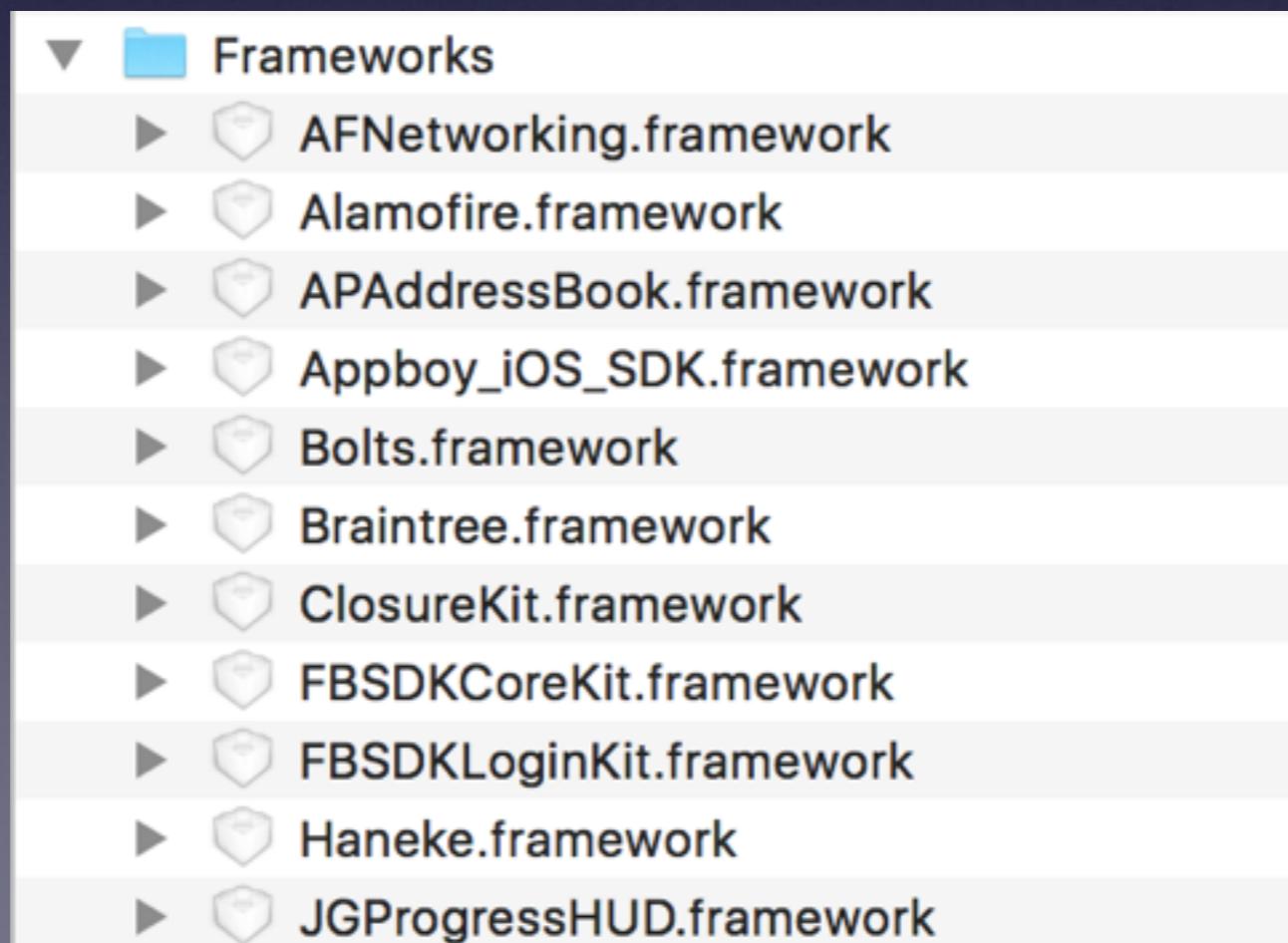
location-pin-  
inactive~iphon  
e.png



location-pin-  
inactive~iph...@2x.  
png



# Framework modules!



# class-dump

[http://stevenygard.com/projects/  
class-dump/](http://stevenygard.com/projects/class-dump/)

**DATA**

# JAILBREAK?

# PIRATE APP STORES

```
$ class-dump Instagram -H -o ~/Desktop/  
Instagram/
```

-  IGBlurredImageProcessor.h
-  IGBlurredImageView.h
-  IGBTondiFilter.h
-  IGBusinessLogic.h
-  IGBusinessPostHeaderView.h
-  IGBusinessPostView.h
-  IGBusinessPostViewController.h
-  IGBusinessPostViewDelegate-Protocol.h
-  IGBoxBlurFilter.h
-  IGBrandLiftAnswer.h
-  IGBrandLiftPrimerView.h
-  IGBrandLiftQuestion.h
-  IGBrandLiftQuestionView.h
-  IGBrandLiftQuestionViewDelegate-Protocol.h
-  IGBrandLiftResultsViewAnswerCell.h
-  IGBrandLiftResultsController.h
-  IGBrandLiftSurvey.h
-  IGBrandLiftSurveyController.h
-  IGBrandLiftThankYouView.h
-  IGBrandLiftThankYouViewDelegate-Protocol.h
-  IGBrannanFilter.h
-  IGBroadcastShareManager.h
-  IGBrooklynVideoFilter.h
-  IGBugReportingProtocol-Protocol.h
-  IGBulkCommentDeleteManager.h
-  IGBulkCommentDeleteManagerDelegate-Protocol.h
-  IGBulkMediaRequestManager-IGBulkPostMediaLoader.h

```
//  
// Generated by class-dump 3.5 (64 bit).  
//  
// class-dump is Copyright (C) 1997-1998, 2000-2001, 2004-2013 by Steve Nygard.  
  
#import "IGGLFilter.h"  
  
#import "NSCopying.h"  
  
@class NSString;  
  
@interface IGImageFilter : IGGLFilter <NSCopying>  
{  
    _Bool _needsConfigure;  
    _Bool _flip;  
    double _strength;  
    NSString *_fullFragmentShader;  
    union _GLKMatrix4 _contentTransform;  
    union _GLKMatrix4 _textureTransform;  
}  
  
+ (long long)filterType;  
+ (id)filterName;  
@property(nonatomic) _Bool flip; // @synthesize flip=_flip;  
@property(retain, nonatomic) NSString *fullFragmentShader; // @synthesize fullFragmentShader=_fullFragmentShader;  
@property(nonatomic) double strength; // @synthesize strength=_strength;  
@property(nonatomic) union _GLKMatrix4 textureTransform; // @synthesize textureTransform=_textureTransform;  
@property(nonatomic) union _GLKMatrix4 contentTransform; // @synthesize contentTransform=_contentTransform;  
- (void).cxx_destruct;  
- (void)render:(id)arg1 to:(id)arg2 program:(id)arg3;  
- (void)configureProgram:(id)arg1;  
- (id)fragmentShader;  
- (id)fragmentShaderPrecision;  
- (id)fragmentFunctions;  
- (id)generateFullFragmentShader;  
- (id)strengthShaderCode;  
- (id)vertexShader;  
- (id)fullVertexShader;  
- (id)copyWithZone:(struct _NSZone *)arg1;  
- (id)init;  
  
@end
```

# <https://mitmproxy.org>

```
○ ○ ○ ~ /git/public/mitmproxy (Python) ⌂
GET https://github.com/
← 200 text/html 5.52kB
GET https://a248.e.akamai.net/assets.github.com/stylesheets/bundles/github2-24f59e3ded11f2a
1c7ef9ee730882bd8d550cfb8.css
← 200 text/css 28.27kB
GET https://a248.e.akamai.net/assets.github.com/images/modules/header/logov7@4x-hover.png?1
324325424
← 200 image/png 6.01kB
GET https://a248.e.akamai.net/assets.github.com/javascripts/bundles/jquery-b2ca07cb3c906cec
cf58811b430b8bc25245926.js
← 200 application/x-javascript 32.59kB
⌚ GET https://a248.e.akamai.net/assets.github.com/stylesheets/bundles/github-cb564c47c51a14
af1ae265d7ebab59c4e78b92cb.css
← 200 text/css 37.09kB
GET https://a248.e.akamai.net/assets.github.com/images/modules/home/logos/facebook.png?1324
526958
← 200 image/png 5.55kB
>> GET https://github.com/twitter

[7] [i:.*] ?:help [*:8080]
```

*Example*

- \*\*\*\*\* 9:41 AM 100%
- < Mailboxes Inbox Edit
- Search
- Andrew Penick 9:32 AM  
Concert  
My ears are still ringing. I think I'm officially too old for rock concerts. But seriously, did it have...
- Tom McNeil 9:27 AM  
Day at the beach  
Here's a great photo from last weekend. My Anthony and wife couldn't wait to get to the...
- Edward Vince 9:27 AM  
Photos from yesterday  
What a perfect day of surfing. In fact, was having better than the waves was getting to...
- Jonathan Condit 9:00 AM  
Hilarious  
Hilarious video on the new cat videos. This is going to went one more...
- Emily Bergendahl 8:37 AM  
World's Most Exotic Resort Swimming Pools  
Hey Graham, Here's the article I was telling you about. Let's pack up our swimsuits, our bags...
- Erica Dang 8:17 AM



**Backwards-  
compatible**

Peek Pop

```
viewController.registerForPreviewingWithDelegate(self, sourceView:  
sourceView)
```

```
func previewingContext(previewingContext:  
UIViewControllerPreviewing, viewControllerForLocation location:  
CGPoint) -> UIViewController?
```

```
func previewingContext(previewingContext:  
UIViewControllerPreviewing, commitViewController  
viewControllerToCommit: UIViewController)
```

```
peekPop = PeekPop(viewController: self)  
peekPop?.registerForPreviewingWithDelegate(self, sourceView:  
collectionView!)
```

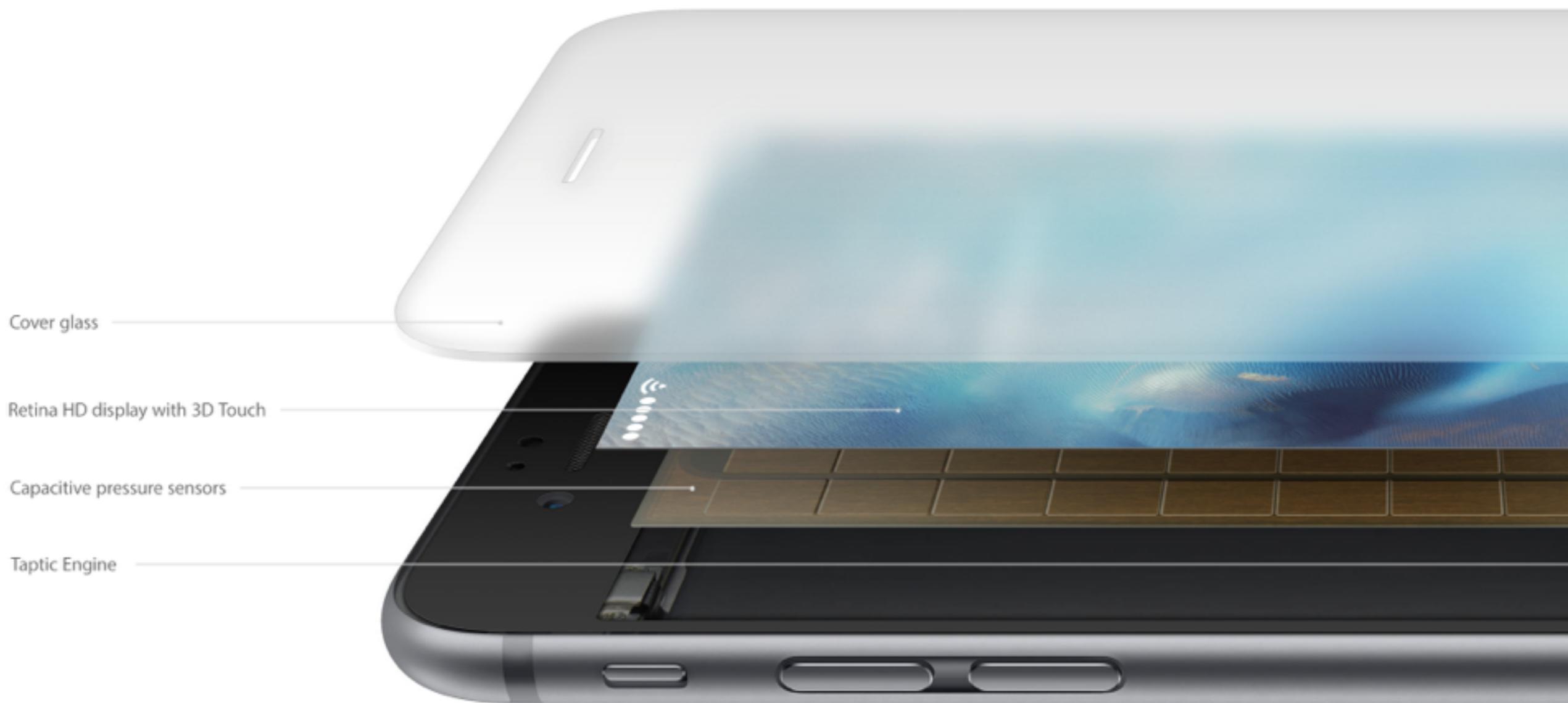
```
func previewingContext(previewingContext: PreviewingContext,  
viewControllerForLocation location: CGPoint) -> UIViewController?
```

```
func previewingContext(previewingContext: PreviewingContext,  
commitViewController viewControllerToCommit: UIViewController)
```

**if 6S -> Apple  
else -> custom**

# Fake Force Touch

# New sensor



# UITouch

```
var force: CGFloat  
var maximumPossibleForce: CGFloat
```

6.6667?

Pressure on  
devices without the  
sensor?



Accelerometer app  
on iPad, prints out  
the reading.

Nothing.

# JAILBREAK GIVES YOUR OLD IPHONE 3D TOUCH

**DISCLAIMER: YOU SHOULD not jailbreak your iPhone. We do not advise you to jailbreak your iPhone.**

Hey, are you are willing to jailbreak your older iOS device? Then you can get what's arguably the most compelling feature of the latest iPhones: 3D Touch. If your iPhone 5 isn't broken,

# EthanArbuckle / ForceTouchActivator

[Code](#)[Issues 0](#)[Pull requests 0](#)[Wiki](#)[Pulse](#)[Graphs](#)

Branch: master ▾

[ForceTouchActivator / Event.xm](#)

```
    touch.density = IOHIDEEventGetFloatValue((__IOHIDEEvent *)children[0],  
(IOHIDEEventField)kIOHIDEEventFieldDigitizerDensity);
```

```
    touch.radius = IOHIDEEventGetFloatValue((__IOHIDEEvent *)children[0],  
(IOHIDEEventField)kIOHIDEEventFieldDigitizerMajorRadius);
```

```
    touch.quality = IOHIDEEventGetFloatValue((__IOHIDEEvent *)children[0],  
(IOHIDEEventField)kIOHIDEEventFieldDigitizerQuality);
```

No density or  
quality on UITouch

but... MajorRadius

Significant change  
in major radius →

Pressure







09:41

100%

[Collections](#)[Moments](#)[Select](#)

Bobigny, Île-de-France

Rue Michel, Rue Gaston Crépin &amp; Allée Gabrielle &gt;

[Share](#)

Thursday

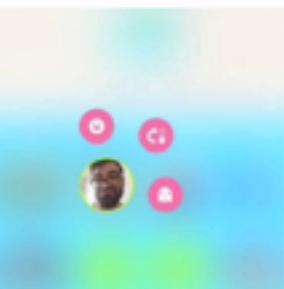
Friday

[Share](#)

Sunday

[Share](#)

Today

[Share](#)

210 Photos, 15 Videos



Photos

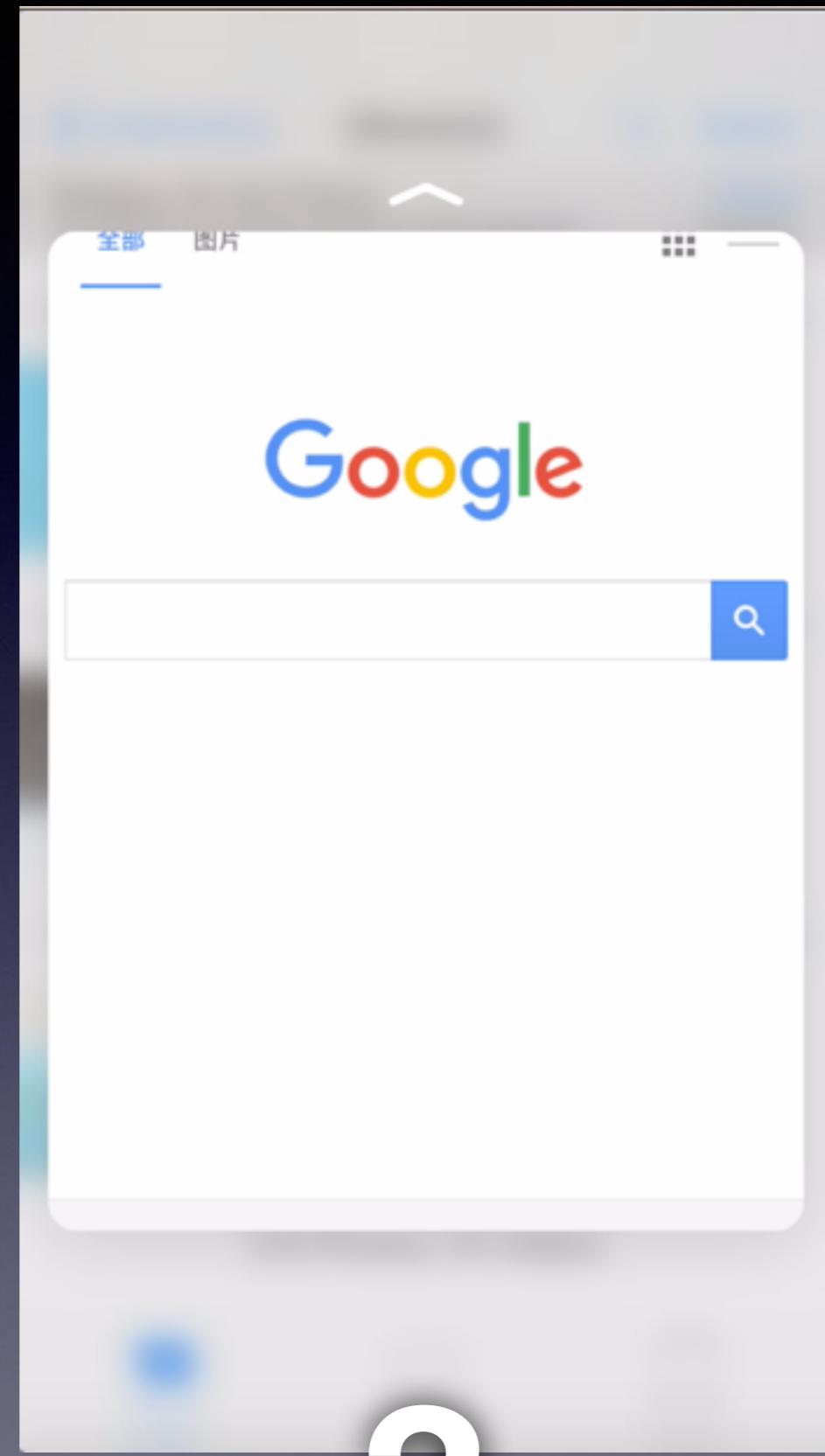
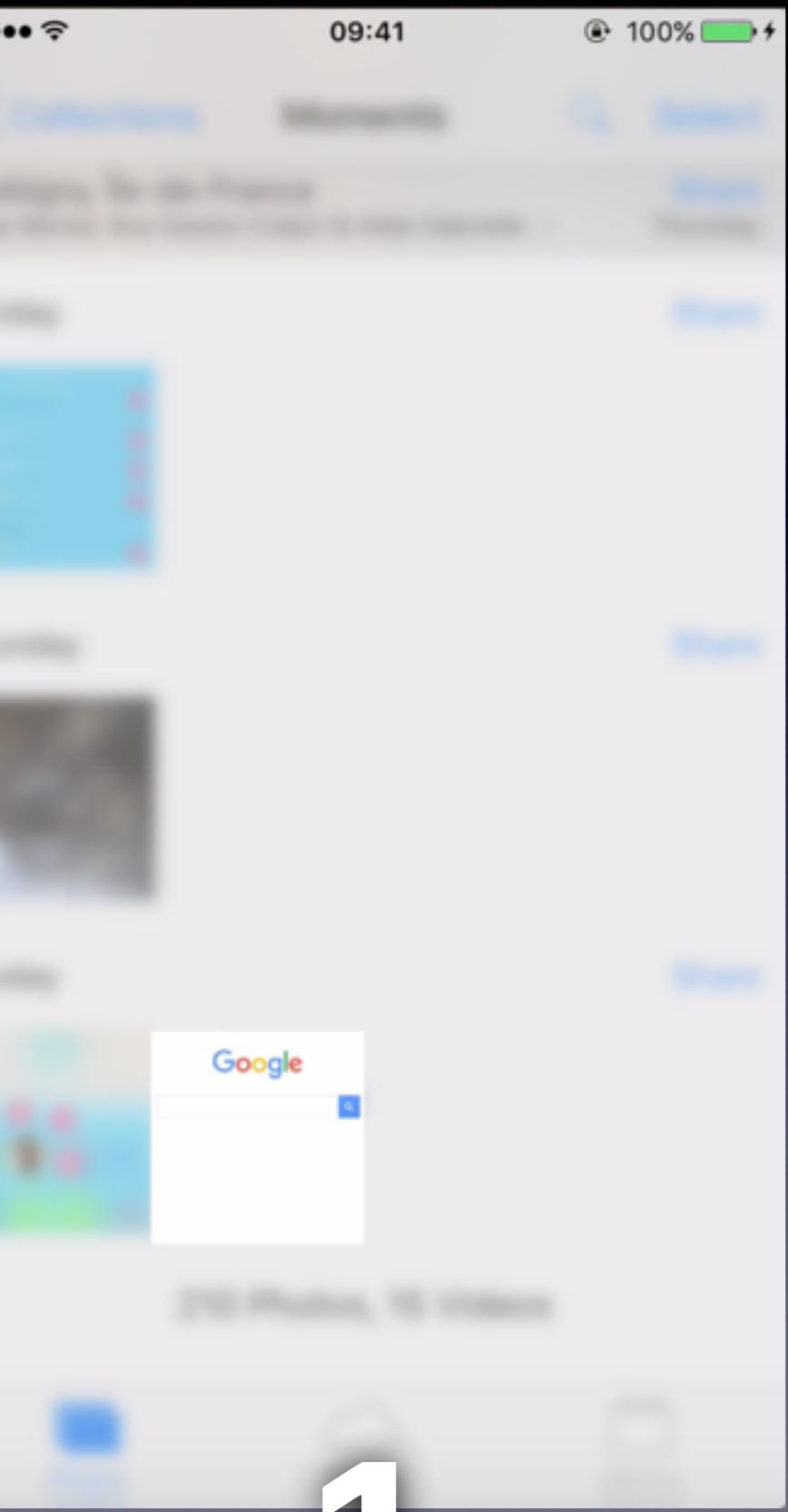


Shared

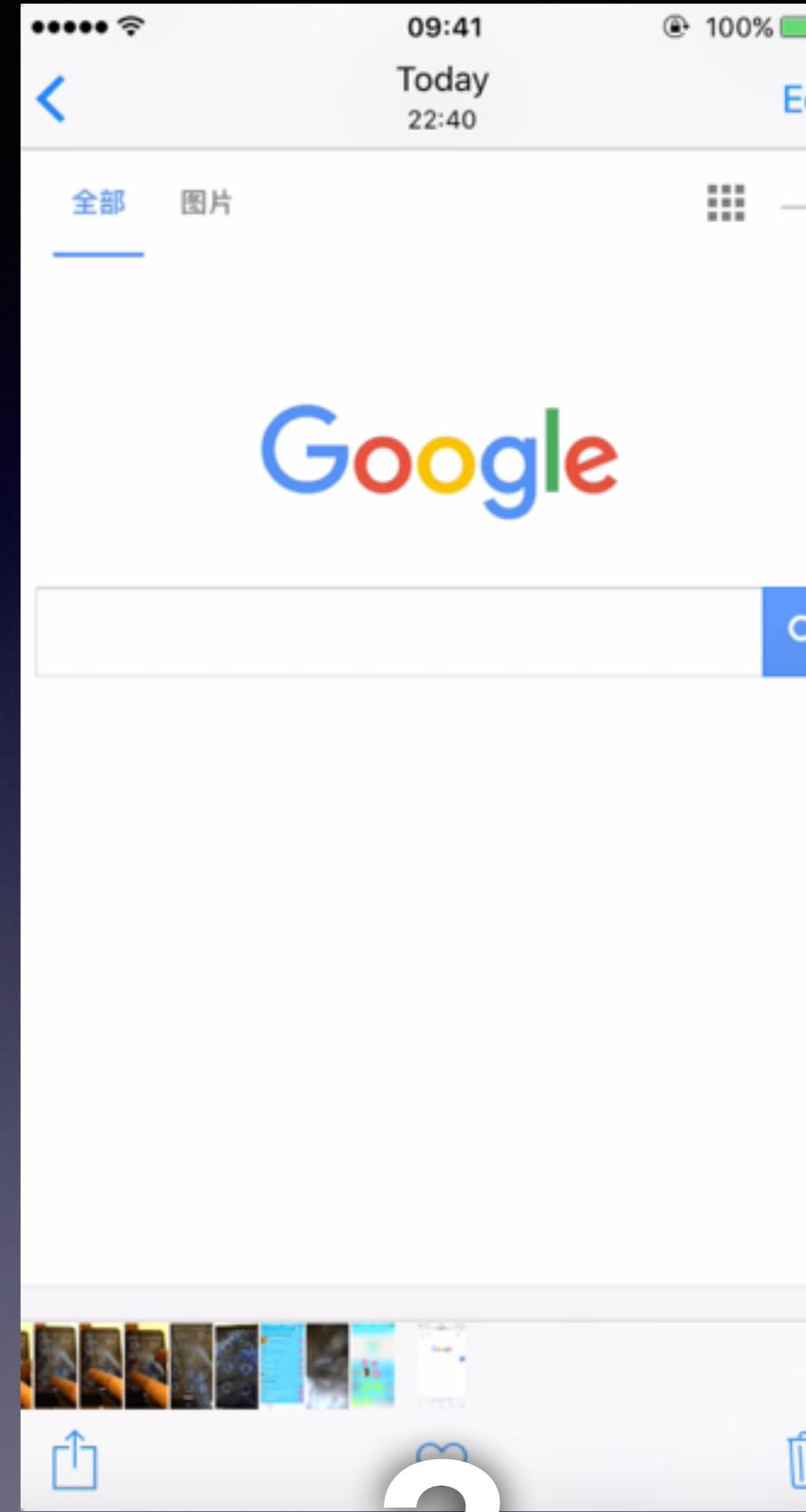


Albums

# Record directly from device



2



3

**Relationship  
between Force and  
Peek & Pop?**

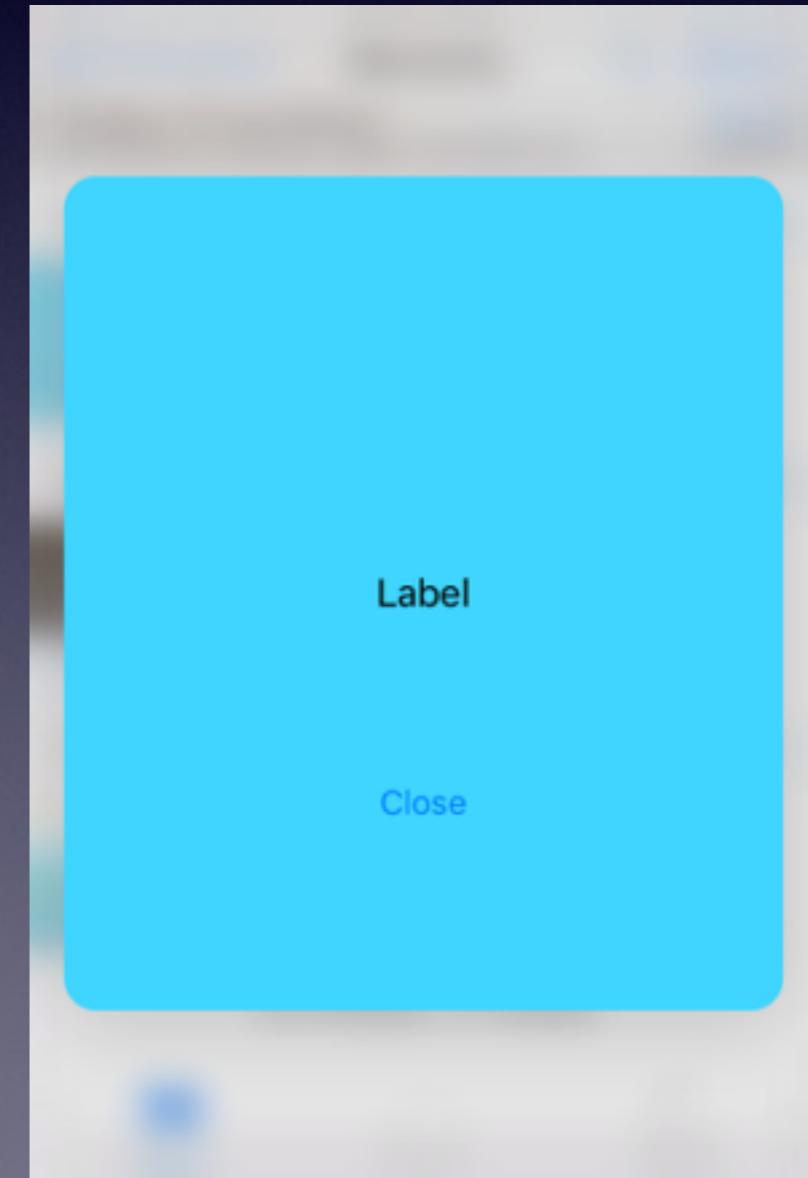
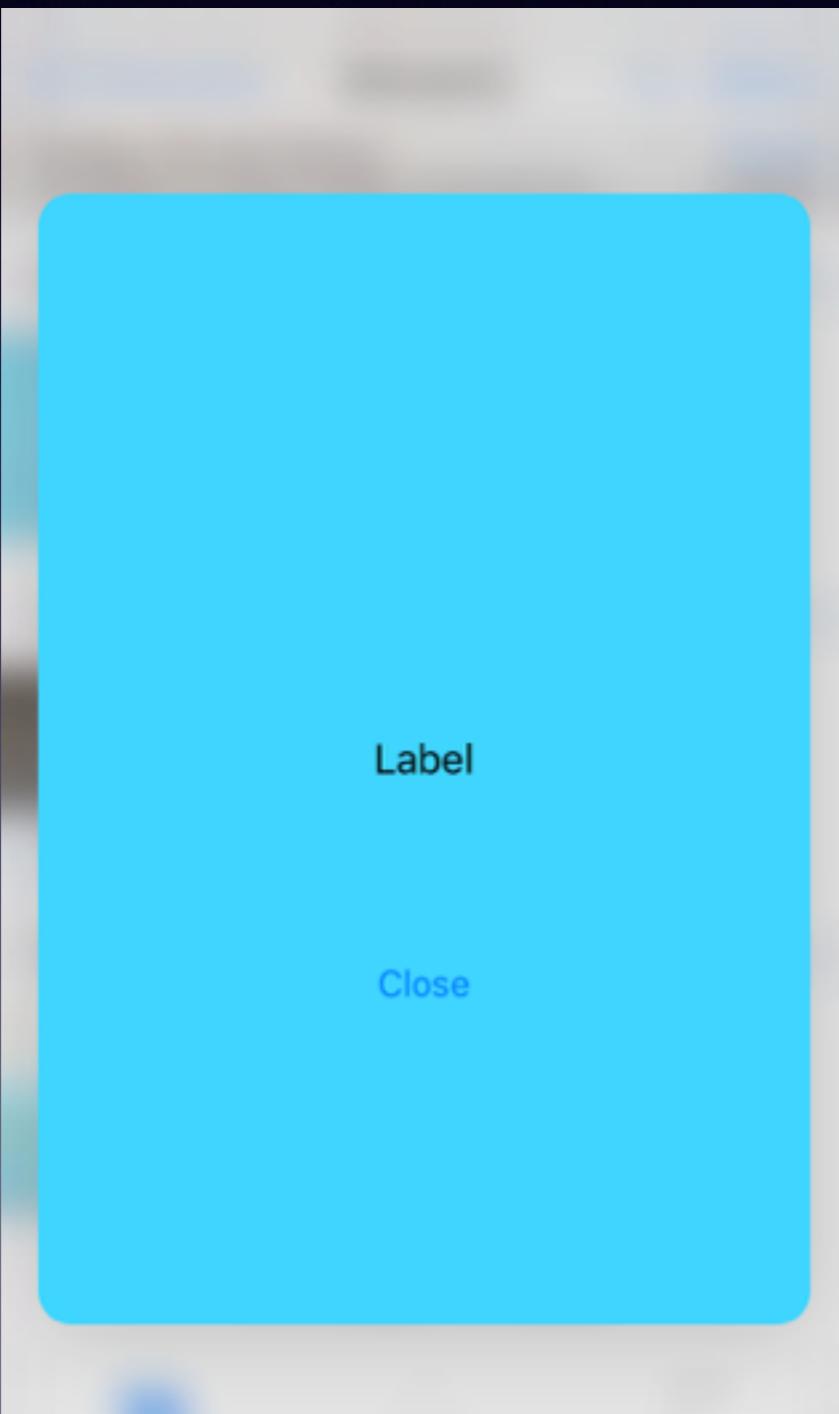
**force/maximumPossibleForce**

**Step 1 - 0.33**

**Step 2 - 0.66**

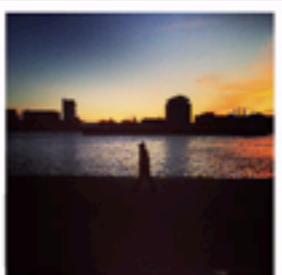
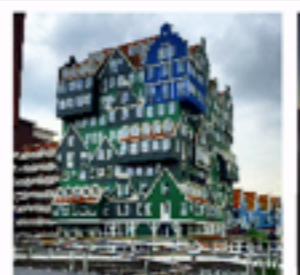
**Step 3 - ~0.9**

# Magic values



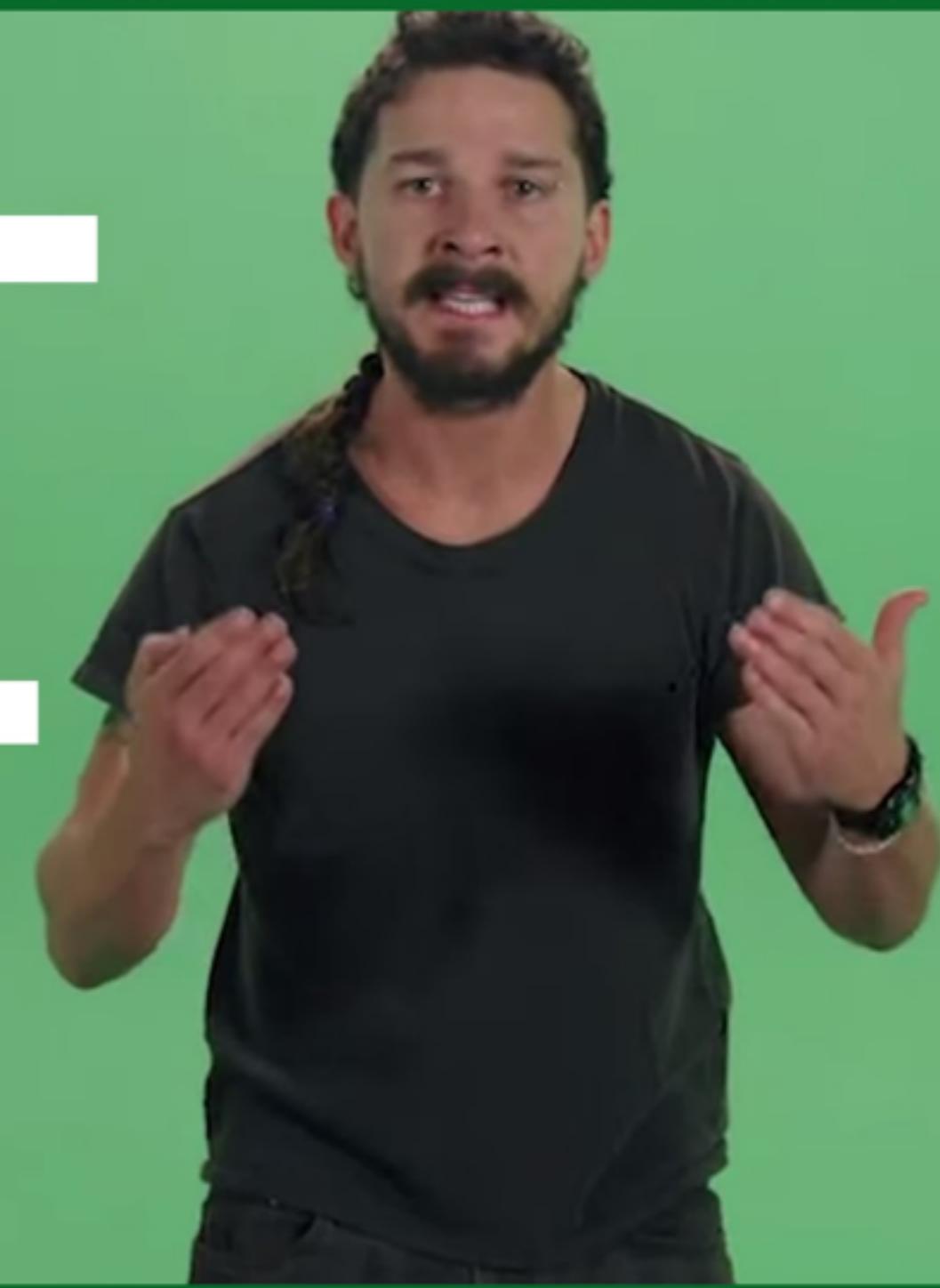
# CADisplayLink

## InstaPreview



github.com/  
marmelroy/  
peekPop

# JUST DO IT





@marmelroy