



# Unifeye SDK Mobile

Creating Mobile Augmented Reality Experiences for iPhone

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# About metaio



- 10 years track record in development & marketing for augmented reality solutions
- Offices in Munich, San Francisco, Seoul
- Employees: 61  
Companies using metaio-AR: 340  
Consumers using metaio-AR: +0,5 million
- Key focus areas:  
marketing / industrial / mobile
- Business models:
  - metaio software products
  - metaio technology licensing
  - development of turnkey solutions



# What is Augmented Reality (AR)?



- AR describes a combination of the two worlds: Reality & Virtual Reality
  - AR allows to superimpose 3D-content/products into the real world
  - AR should allow interaction with 3D-content at realtime
- AR is the ultimate interface between the physical and virtual world**

# How does AR work?



3D-Content



Live-Videostream



3D-Content within videostream

Example PC-Platform



Computer

+



Camera (sensor)

+

Unifeye SDK®

Augmented Reality Software

# Augmented Reality



\*Gartner named the 10 top disruptive technologies for 2008-2012\*

Semantics

Multicore and hybrid processors

Virtualisation and fabric computing

Social networks and software

Cloud computing & cloud/web platforms

**Augmented Reality**

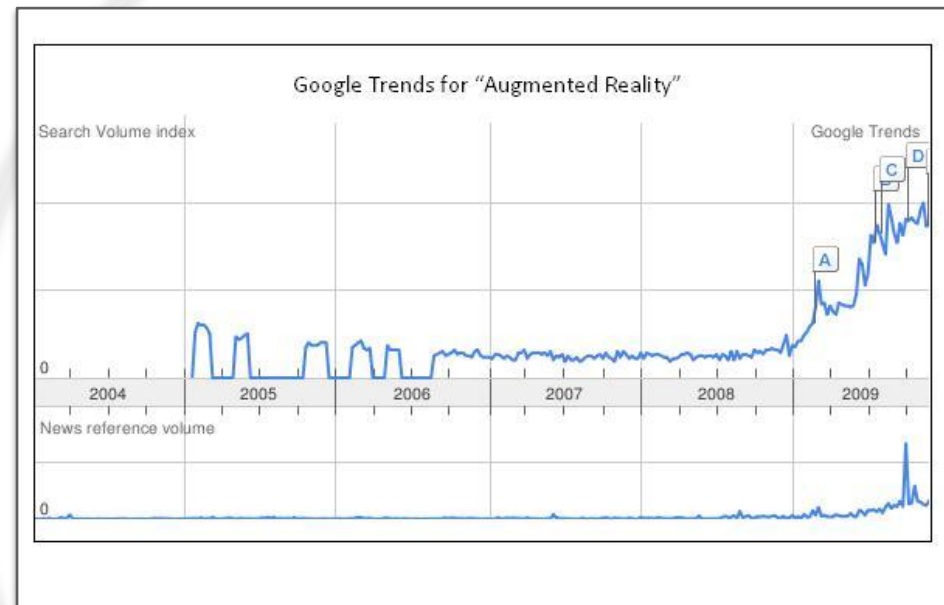
Ubiquitous computing

User interface

Contextual computing

Web mashups

- Augmented Reality is named one of the top 10 disruptive technologies\* for 2008-2012
- Augmented Reality on Google Search is vastly on the rise



\*Gartner defines a disruptive technology as one that causes major change in 'the accepted way of doing things', including business models, processes, revenue streams, industry dynamics and consumer behavior.

# AR in Store: LEGO DIGITAL BOX



## FACTS

- Installed in all LEGO brand stores worldwide
- Let consumers reveal a virtually built-up and fully animated LEGO product by holding the package up to the DIGITAL BOX
- Unique brand experience, helps making purchase decisions
- Get the experience: <http://www.youtube.com/watch?v=mUuVvY4c4-A>

# AR at Home: ADIDAS SNEAKER



**THE KEYS TO OUR HOOD**

For the first time in footwear history, we've created an online experience triggered by our exclusive collection of sneakers, the adidas Originals AR Game Pack. Using AR technology combined with your computer, the adidas Neighborhood will come to life, unlocking the streets where originality lives. Friends of adidas like R&B sensation Ryan Leslie, pro skater Tim O'Connor and the lovely Clara will be there to lead the way where exciting challenges, content, and fun surprises await you around every corner. The sneaker is the key, so get yours and get your game on.

View the collection

Unlock the adidas Neighborhood



## FACTS

- The Adidas Originals Augmented Reality (AR) Game Pack
- Global product launch on February 10th, 2010
- Launch the AR-Game at: [www.adidas.com/originals/neighborhood](http://www.adidas.com/originals/neighborhood)
- Check out the campaign: <http://www.youtube.com/watch?v=rRcognsyqNY>



- Why is AR on mobiles so interesting?
  - Mobile phones, especially iPhone are “sensor packages”
  - Always have a rigidly attached rear facing camera  
→ perfect for video see-through
  - Perfect AR device in consumer’s hand, everywhere
  - Mobile internet, web 2.0 offer integration of dynamic data



<http://www.youtube.com/watch?v=vFaxQqH6eig>



- The Unifeye SDK Mobile
  - Full SDK for Augmented Reality
  - Simple applications is possible out-of-the-box
  - Work seamlessly on multiple platforms
  - Compatible / consistent with Unifeye SDK on PC

# Unifeye SDK Mobile



- Platforms

- Currently on top selling Platforms

 iPhone

 Windows Mobile

 symbian  
OS

- Soon also on

 ANDROID

# Unifeye SDK Mobile



- Use Cases
  - AR guidance in e.g. museum
  - AR live advertising
  - AR games
  - AR navigation
  - AR interior designer\*
  - Mobile service and maintenance



iLiving by metaio



Photo by Louvre - DNP Museum Lab

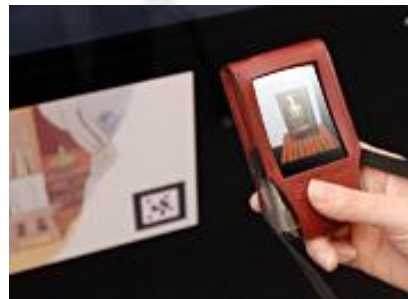


Photo by Louvre - DNP Museum Lab



Zombie Shooter by metaio



- Feature Highlights in SDK Release 2.0
  - Picture Marker Tracking
  - Markerless Tracking\*
  - Improved Demos
    - Show Simple/Complex Models
    - Use different Tracking
    - Can check performance on target phone, see difference on tracking
  - PNG Support
  - Occlusion Rendering
  - Image recognition\*
  - Text Rendering
  - New Encryption & Protection mechanism





- Supported 3D Content Types
  - Wavefront \*.obj Format
    - For static scenes
    - Supports different materials per object
    - Multiple meshes inside one object file
  - Quake II's \*.md2 Format
    - Up to 2048 vertices per model recommended
    - For iPhone 8-10k polygons are feasible
    - No vertex colors, but supports texture (one per file)
    - Supports animations
    - Different sub-animations in one MD2 file
    - We use Blender or 3DS Max with QTip Exporter
    - Vertex animations (no bones)



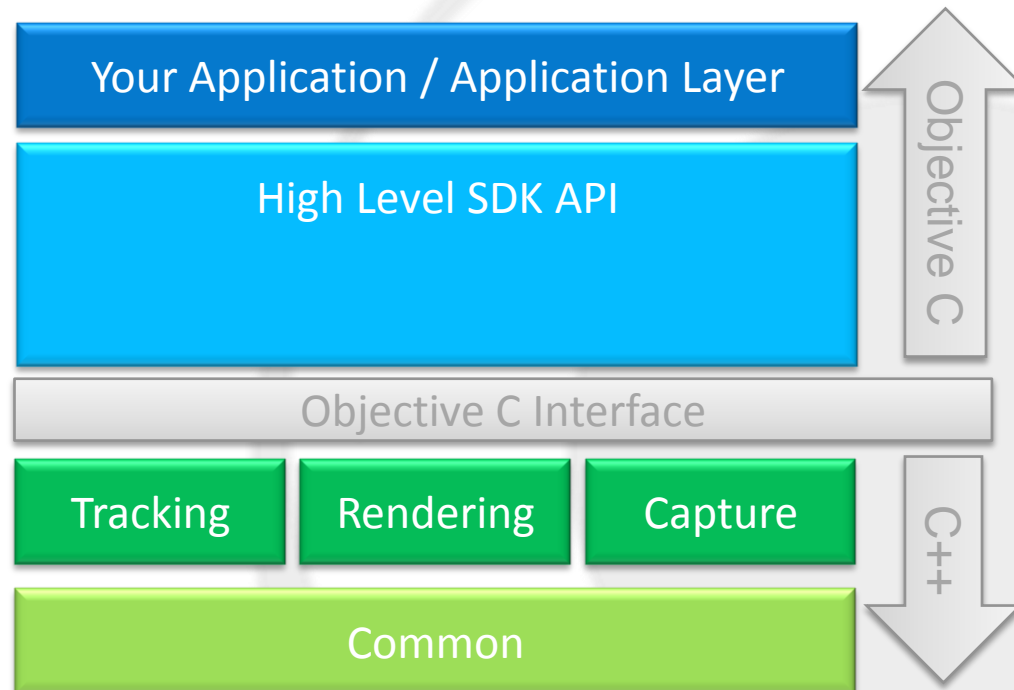
- The Mobile SDK
  - Highly portable C/C++ code with Interfaces for Objective C and Java (coming soon for Android)
  - XML configuration of scenes, tracking, calibration
  - Rapidly growing feature set
  - Internal Quality Assurance for high quality code
  - Flexible architecture to allow integration of new modules and hardware specific implementations

# Unifeye SDK Mobile



- The SDK API (iPhone)
  - Main code in C++
  - Interface for iPhone
  - Native Programming with Objective C in XCode

XML configuration →  
or you Application build  
upon the High Level  
SDK API



Abstraction of different →

- Operating Systems
- Hardware
- OpenGL Versions



- XML Example - Configuring a Scene

- Upper Part

- Camera calibration
- Tracking configuration file
- ...

- Lower part

- Models to be loaded
- Move the object, scale it...

```
<?xml version="1.0" ?>
- <Scene>
- <SceneParams>
  <sceneTitle />
  <!-- optional -->
  <projectFolder />
  <!-- optional -->
  <sourceType>Camera</sourceType>
  <!-- Image, Video, Camera -->
  <sourcePath>AS_StartImage.jpg</sourcePath>
  <cameraName>LOGITECH_QUICKCAM_PRO_5000</cameraName>
  <markerDataPath>AS_Tracking_Data.xml</markerDataPath>
  <thresholdOffset>0</thresholdOffset>
  <trackingQuality>robust</trackingQuality>
  <!-- Fast or Robust -->
  <useHeadLight>1</useHeadLight>
- <CalibrationData>
  <type>standard</type>
  <!-- standard, extended -->
  <calibData>Camera.xml</calibData>
</CalibrationData>
  <cameraTimestampAdjustment>0</cameraTimestampAdjustment>
+ <SyncParameters>
+ <SceneParams>
- <Geometry>
  <type>normal</type>
  <!-- normal, draggable, occlusion -->
  <title>MyModelName</title>
  <cosID>1</cosID>
  <vrmlPath>MyModel.wrl</vrmlPath>
  <visible>1</visible>
  <wireframe>0</wireframe>
  <!-- Offset is deprecated -->
+ <Offset>
  <useDragPlaneLimits>0</useDragPlaneLimits>
  <dragPlane />
  <!-- XY, XZ, YZ -->
+ <DragPlaneLimits>
- <Rotation>
  <!-- Axis Angle -->
  <x>0</x>
  <y>0</y>
  <z>1</z>
  <angle>0</angle>
</Rotation>
- <Translation>
  <x>0</x>
  <y>0</y>
  <z>0</z>
</Translation>
- <Scale>
  <x>1</x>
  <y>1</y>
  <z>1</z>
</Scale>
</Geometry>
+ <ClippingPlanes>
+ <Bitmap2D>
+ <Text2D>
+ <VirtualCamera>
+ <FramesSourceParameters>
</Scene>
```

Tracking configuration file

Camera calibration file

Node for a model including information on  
- its path (vrmlPath relative to the .scf file)  
- its binding to a coordinate system in the tracking configuration file (cosID)  
- its visibility (1 = true, 0 = false)  
- its rotation (Rotation as axis-angle)  
- its translation (Translation in mm)  
- its scale (Scale)

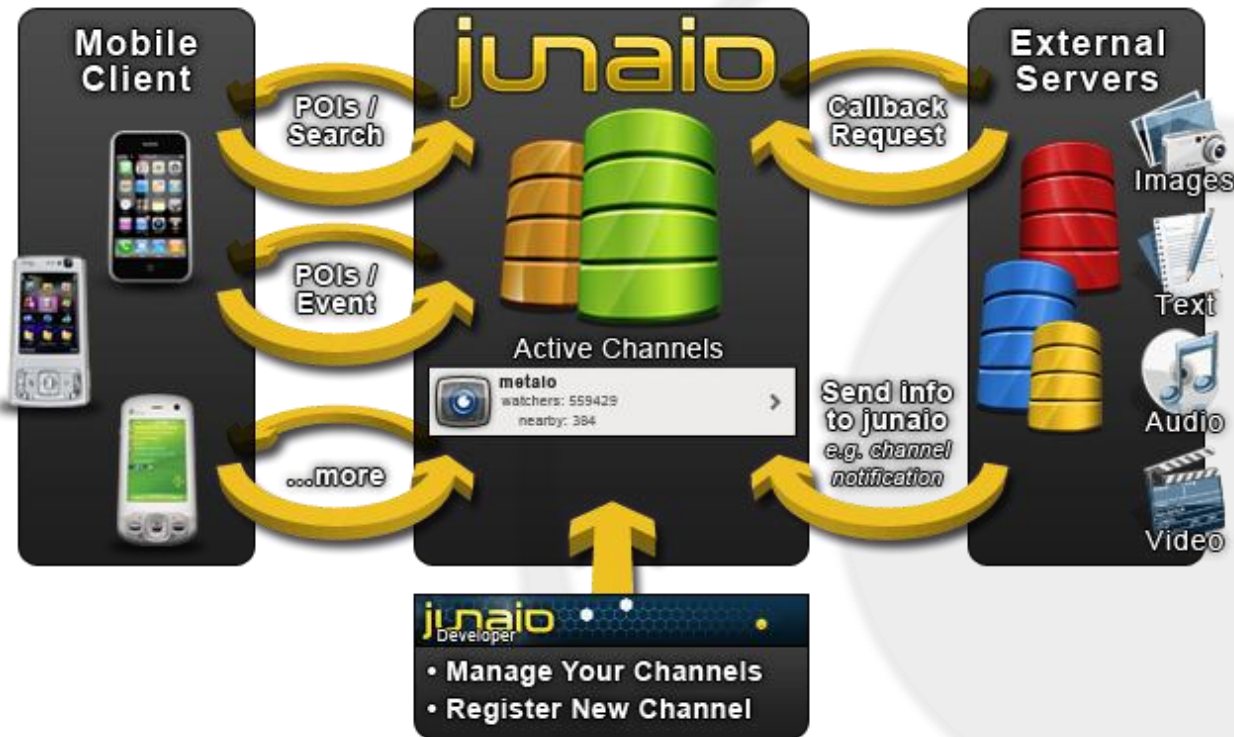


# junaio

**Use Case: Mobile Augmented Reality Experience Platform**



- Free App in the App Store
- Location based AR platform integrating natural feature tracking
- Based on Unifeye Mobile SDK for iPhone
- Free Open API for Developers





## Creating AR experiences with junaio:

- You do not need any experience in programming for embedded systems; just XML and server side programming, such as PHP
- Your concept will be available on multiple platforms with just programming it once
- You are very flexible to create simple ideas or complex AR concepts



The advertisement features a hand holding a smartphone displaying the junaio 2.0 interface. The screen shows a street scene with AR overlays: a 'Museum of Art' notification, a 'Central Station' notification with 'Next train: 7 minutes', and a compass. The background is a blurred city street. The text 'junaio developer' and 'CONTEST' are prominently displayed at the top.

**Win \$5000 (US) and make yourself known among the experts in a world changing technology—Mobile Augmented Reality.**

**GET STARTED:**

- Sign up as a developer at [www.junaio.com](http://www.junaio.com) & follow the "Getting Started" steps
- Develop your own channel for junaio...it's up to you to decide whether you want to create a game, mashup, tour guide, art exhibition or edutainment channel—unleash your creativity!
- The 5 channels with the most subscribers on June 16, 2010 will be shortlisted.
- An independent jury of Augmented Reality experts will select the winner

www.metaio.com

MIXED REALITY. UNIQUE SOLUTIONS.

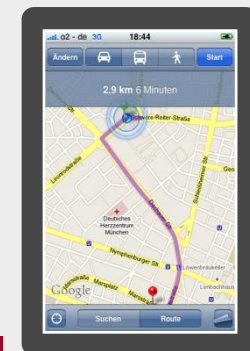
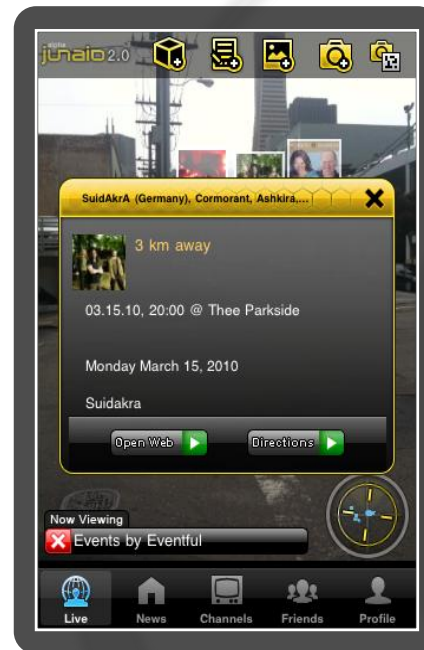
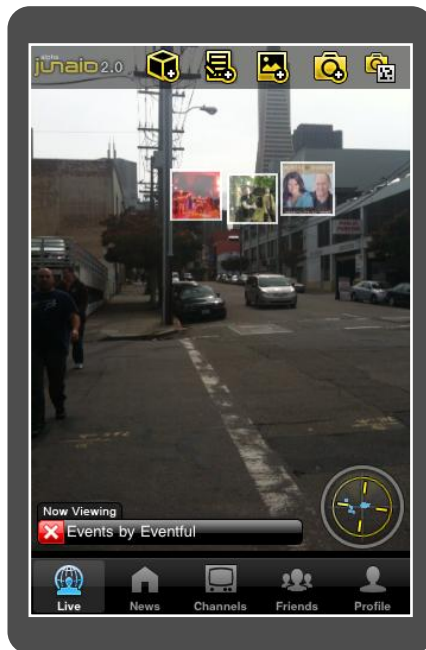
metaio  
AUGMENTED SOLUTIONS





Creativity with no limitations, but your own imagination:

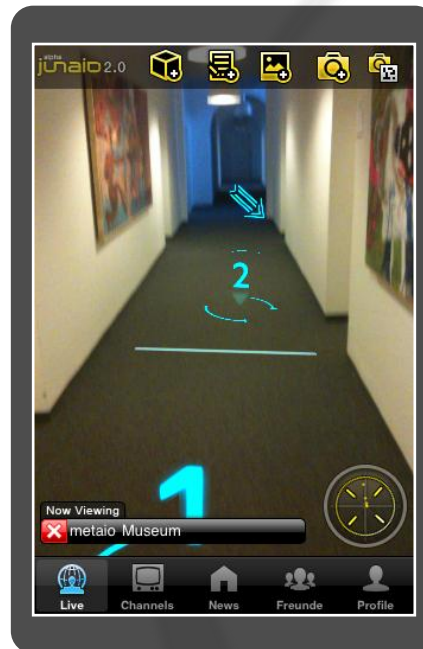
- AR Mashups
- Tours with animated 3D characters
- Edutainment right on the spot





Creativity with no limitations, but your own imagination:

- Multiplayer games or scavenger hunts
- Interactive, indoor and outdoor exhibitions
- Location independent gaming





- Supported media within junaio:
  - Text
  - Images
  - Animated and still 3D models
  - Video
  - Audio
- Support for natural feature tracking for Android
- Supports LLA markers





- Create your junaio channel in as little as 30 minutes!!
- Get your API key at [www.junaio.com/publisher](http://www.junaio.com/publisher)
- Setting up your channel is easy
  1. Download one of our libraries
  2. Create XML output in your script
  3. Register a new Channel online
  4. Validate the Channel online and test it on your phone
  5. Submit the channel
- That's it!

**junaio**  
developer  
[www.junaio.com](http://www.junaio.com)

# Contact

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