

Video Game Design

Chapter 6 Development Tools

Witcha Feungchan

Topics

- Development approaches
- Game tools
- Game makers
- Game engines
- Professional services
- Game testing
- Advanced topics

Development approaches

- There are many ways to develop game, but we do not have any standard for game development.
- Game is an entertainment form of art & technology, which require various tools and technologies to support the game development.
- Software development processes can be applied to game development but may not cover all requirements.

Major approaches

Features	Build from scratch	Game tools
Support design	fully supported	some limited
Cost	development time	licence/royalty fee
Duration	long	short
Flexibility	ultra flexible	some limited
Performance	optimized	good
Overhead	lean	bulky
Purposed	specific	general
Programing	coding	scripts
Cross Platforms	recoding	Mostly supported
Support	no support	company/community

Making decisions



Making decisions

Lot of ideas
Full of imagination
Original design
Unique gameplay

I would.....

Build from scratch

Mainstream idea
Standard gameplay
Less programming
Fast development
Need support

I would.....

Game tools



Game tools

- Even building from scratch, developers still need some common tools to create a game.
- **IDE** is used to program and build a game.
- Graphic tools: 3D, 2D, bitmap, and vector
- Sound tools: compose, modify, and trim
- In general, game tools refer to game engine/maker.

Integrated Development Environment

- Designer
- Editor
- Builder
- Debugger
- Profiler

<https://www.visualstudio.com/en-us/products/free-developer-offers-vs.aspx>

<https://eclipse.org/ide/>

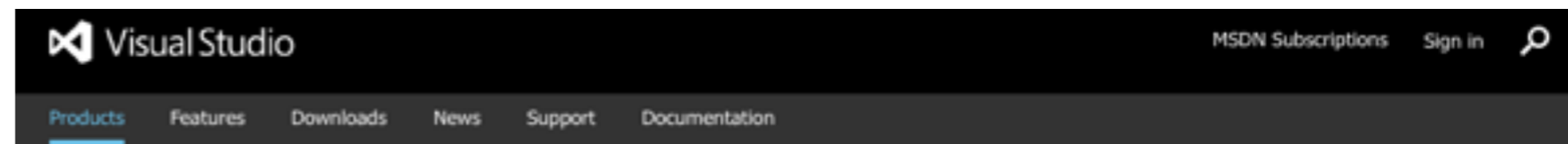
<https://netbeans.org>

<https://developer.apple.com/xcode/ide/>

<http://developer.android.com/sdk/index.html>

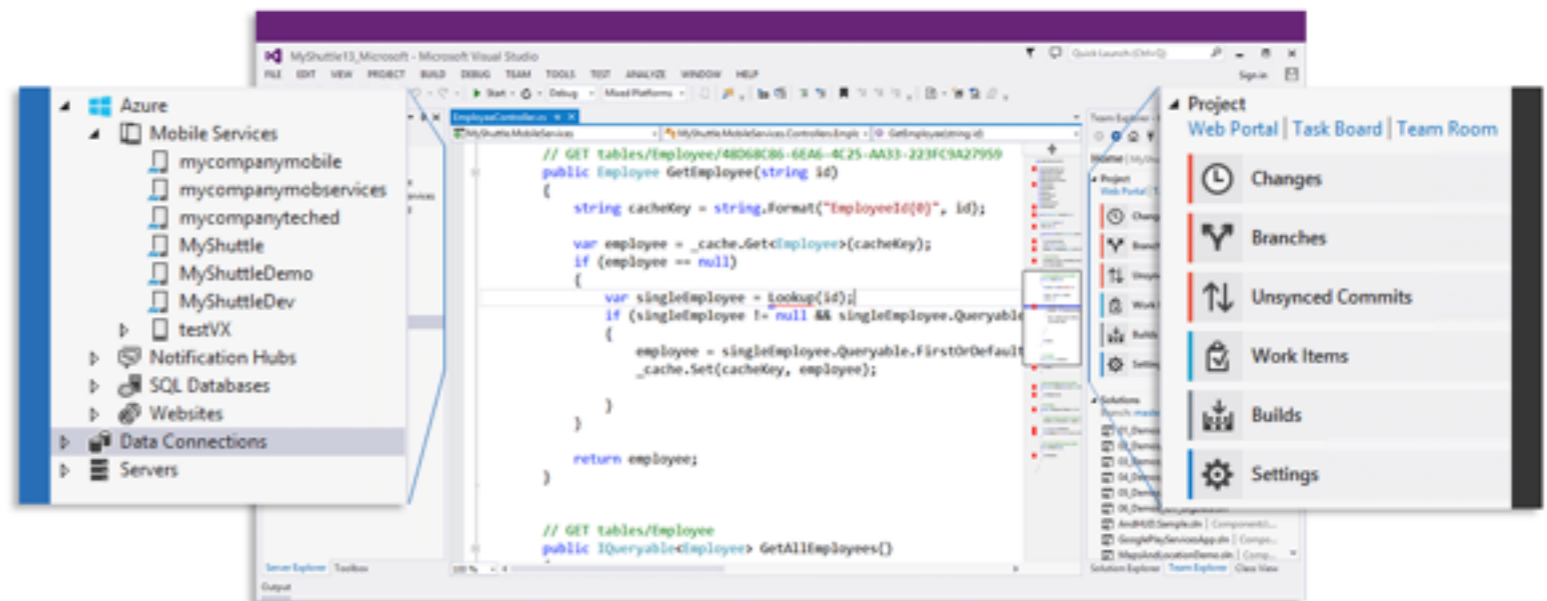
Integrated Development Environment

- Designer
- Editor
- Builder
- Debugger
- Profiler



Everything you need to create great apps. Free.

The power of the cloud, state-of-the-art tools, and agile development services provide you with the most comprehensive free developer offering ever!



Microsoft Azure

A cloud platform that supports any OS, language, or framework, and scales to meet your needs.

- 10 free web sites
- 10 free mobile services
- Seamless access to additional services

[Learn more >>](#)

Visual Studio

A feature rich development environment for creating apps across devices, desktops, web and the cloud.

- Free editors and debuggers
- Free tooling for apps on any device
- Access to thousands of free extensions

[Learn more >>](#)

Visual Studio Online

Cloud services for development teams to collaborate and manage software projects.

- 5 free basic user licenses
- Unlimited private code repos
- Agile project management

[Learn more >>](#)

<https://www.visualstudio.com/en-us/products/free-developer-offers-vs.aspx>

<https://eclipse.org/ide/>

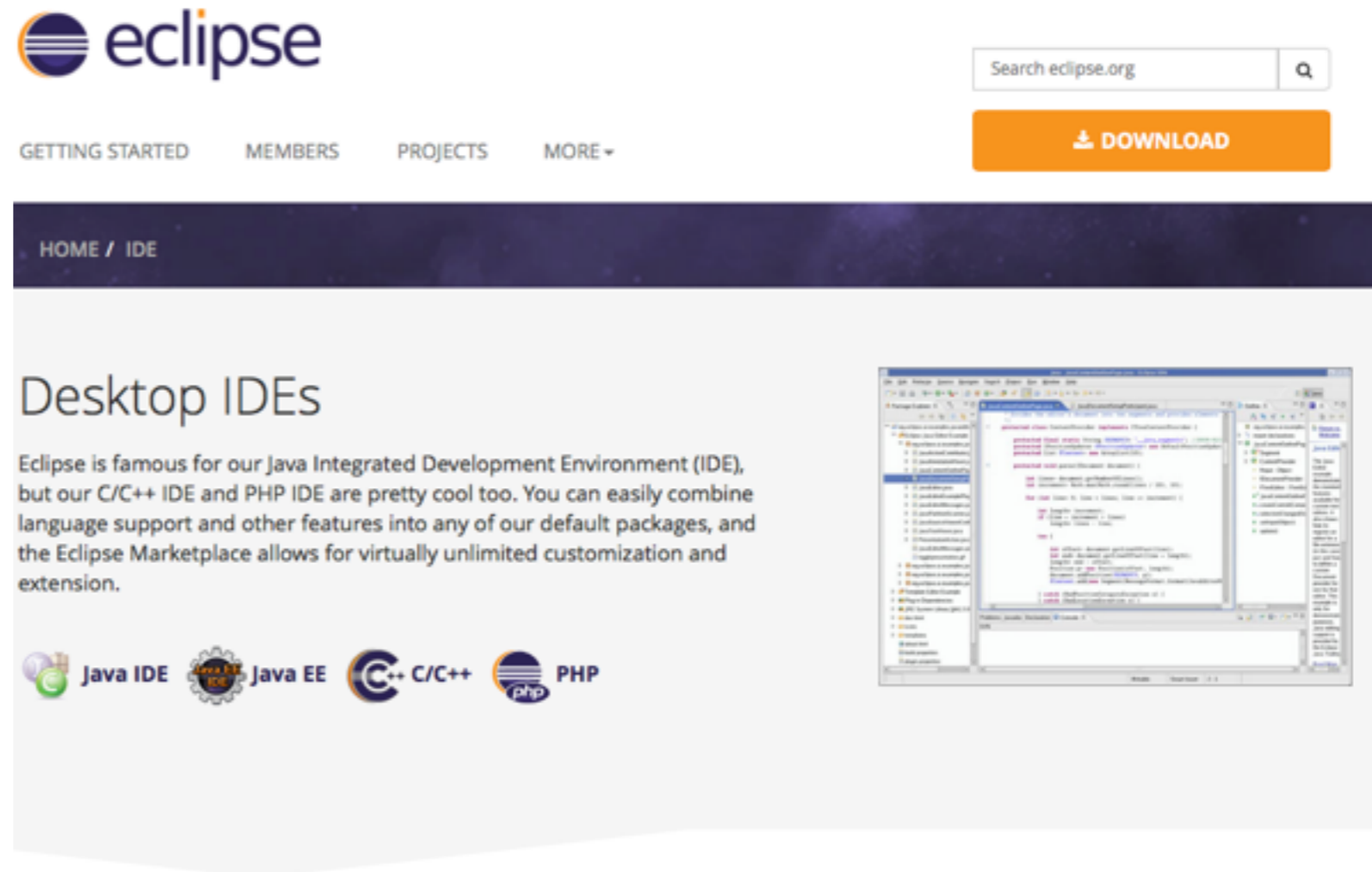
<https://netbeans.org>

<https://developer.apple.com/xcode/ide/>

<http://developer.android.com/sdk/index.html>

Integrated Development Environment

- Designer
- Editor
- Builder
- Debugger
- Profiler



Web IDEs

Develop your software wherever you go. It'll be there, in the cloud, right where you left it. Just log in from a web browser on a desktop, laptop, or tablet — at an airport, on a bus, or even in your office. All you need is a modern web browser and you're ready to get started.



<https://www.visualstudio.com/en-us/products/free-developer-offers-vs.aspx>

<https://eclipse.org/ide/>

<https://netbeans.org>

<https://developer.apple.com/xcode/ide/>

<http://developer.android.com/sdk/index.html>

Integrated Development Environment

- Designer
- Editor
- Builder
- Debugger
- Profiler

The screenshot shows the NetBeans IDE website homepage. At the top, there is a navigation bar with links for NetBeans IDE, NetBeans Platform, Enterprise, Plugins, Docs & Support, and Community. A search bar is located on the right. The main content area features a large blue banner for NetBeans IDE 8.0.2, with the text "The Smarter and Faster Way to Code" and "Quickly and easily develop desktop, mobile and web applications with Java, HTML5, PHP, C/C++ and more." A "NEW!" starburst graphic is present. Below the banner are two orange buttons: "Learn More" and "Download". A blue button labeled "Watch Now" is also visible, with the text "Screencasts of NetBeans IDE 8.0 Features" above it. Below the banner is a "Featured News" section with the headline "Free: NetBeans Day Netherlands" and a "See All News" link. The main content area is divided into three columns, each with a title and a "More" link: "Rich Set of Community Provided Plugins" (with a plug icon), "Best Support for Latest Java Technologies" (with Java 8 and JavaFX logos), and "Fast & Smart Code Editing" (with a code editor screenshot). The footer contains links for SiteMap, About Us, Contact, and Legal & Licences, along with social media icons for Facebook, YouTube, Google+, and Twitter. A copyright notice at the bottom states: "By use of this website, you agree to the NetBeans Policies and Terms of Use. © 2015, Oracle Corporation and/or its affiliates. Sponsored by ORACLE".

<https://www.visualstudio.com/en-us/products/free-developer-offers-vs.aspx>

<https://eclipse.org/ide/>

<https://netbeans.org>

<https://developer.apple.com/xcode/ide/>

<http://developer.android.com/sdk/index.html>

Integrated Development Environment

- Designer
- Editor
- Builder
- Debugger
- Profiler



Xcode

The complete toolset for building great apps.

What's New

Xcode IDE

Interface Builder

Features

Downloads

Tools you'll love to use.

The Xcode IDE is at the center of the Apple development experience. Tightly integrated with the Cocoa and Cocoa Touch frameworks, Xcode is an incredibly productive environment for building amazing apps for Mac, iPhone, and iPad.



Xcode smoothly takes you from concept, to code, to customers.

<https://www.visualstudio.com/en-us/products/free-developer-offers-vs.aspx>

<https://eclipse.org/ide/>

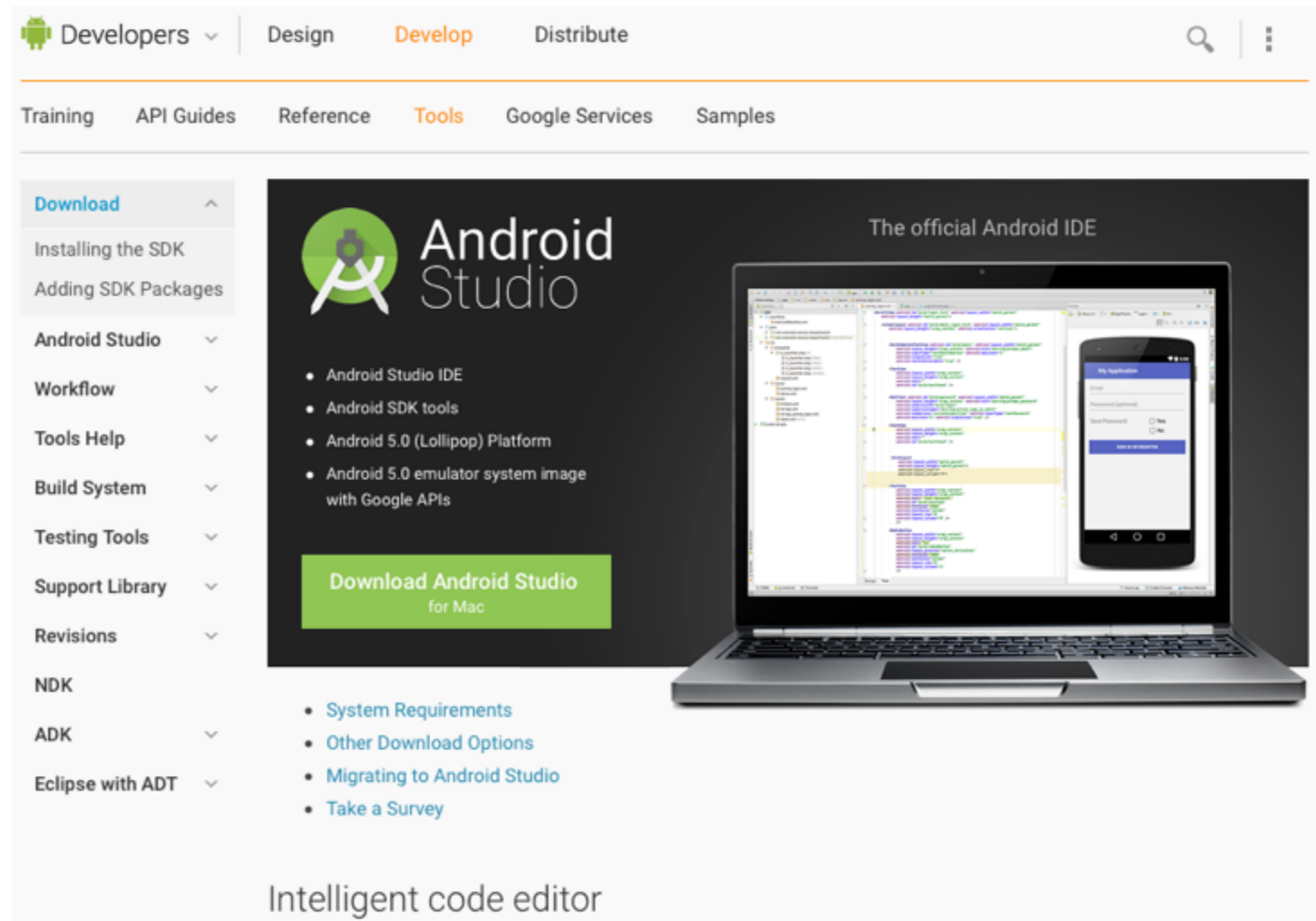
<https://netbeans.org>

<https://developer.apple.com/xcode/ide/>

<http://developer.android.com/sdk/index.html>

Integrated Development Environment

- Designer
- Editor
- Builder
- Debugger
- Profiler



The screenshot shows the Android Studio website. The top navigation bar includes 'Developers', 'Design', 'Develop', and 'Distribute'. Below this, there are links for 'Training', 'API Guides', 'Reference', 'Tools', 'Google Services', and 'Samples'. The main content area features the Android Studio logo and the text 'The official Android IDE'. A large green button says 'Download Android Studio for Mac'. To the right, a laptop displays the Android Studio interface with a code editor and a virtual device. Below the main content, there are links for 'System Requirements', 'Other Download Options', 'Migrating to Android Studio', and 'Take a Survey'. At the bottom, it says 'Intelligent code editor'.

Download

Installing the SDK

Adding SDK Packages

Android Studio

Workflow

Tools Help

Build System

Testing Tools

Support Library

Revisions

NDK

ADK

Eclipse with ADT

Android Studio

The official Android IDE

- Android Studio IDE
- Android SDK tools
- Android 5.0 (Lollipop) Platform
- Android 5.0 emulator system image with Google APIs

Download Android Studio for Mac

- System Requirements
- Other Download Options
- Migrating to Android Studio
- Take a Survey

Intelligent code editor

<https://www.visualstudio.com/en-us/products/free-developer-offers-vs.aspx>

<https://eclipse.org/ide/>

<https://netbeans.org>

<https://developer.apple.com/xcode/ide/>

<http://developer.android.com/sdk/index.html>

Graphic tools

- Design
- Draw
- Paint
- Retouch
- Model
- Animate



Pixen

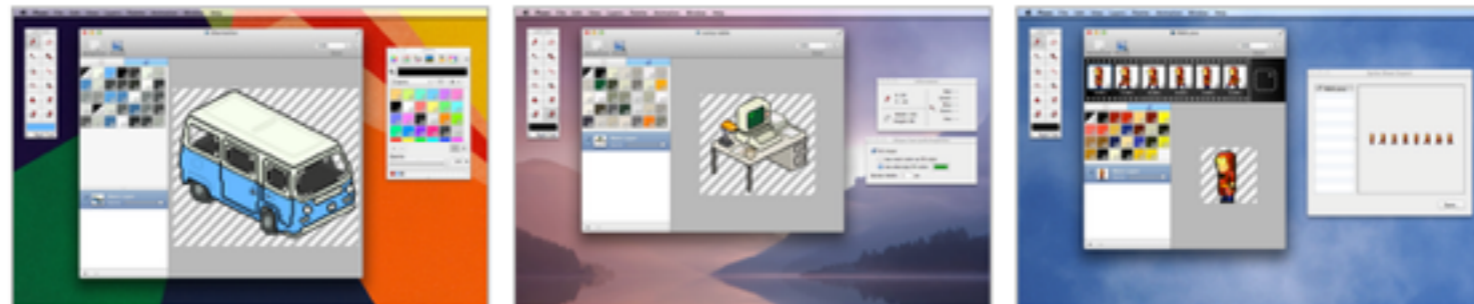
pixel art editor for Mac OS X

Pixen is a pixel art editor designed for working with low-resolution raster art, such as those 8-bit sprites found in old-school video games. With innovative features like a color palette system, patterns, and high-zoom support, Pixen packs all the tools pixel artists need in an intuitive, Mac-native interface. Pixen also makes creating frame-by-frame animations fun and easy.

[Purchase in the Mac App Store](#)

[Follow on Twitter](#)

[Support](#)



- <http://www.pixenapp.com>
- <http://www.piskelapp.com>
- <http://www.gimp.org>
- <https://inkscape.org>
- <http://www.blender.org>
- <http://esotericsoftware.com>
- <http://www.brashmonkey.com/index.htm>

Graphic tools

- Design
- Draw
- Paint
- Retouch
- Model
- Animate

<http://www.pixenapp.com>

<http://www.piskelapp.com>

<http://www.gimp.org>

<https://inkscape.org>

<http://www.blender.org>

<http://esotericsoftware.com>

<http://www.brashmonkey.com/index.htm>



The image shows a screenshot of the Piskel web application. At the top, the word "PISKEL" is written in a large, white, pixelated font. Below it, the application interface is displayed. The main canvas shows a pixel art character of Megaman in a walking pose. To the left of the canvas is a toolbar with various drawing tools like a pencil, eraser, and selection tools. Above the canvas is a palette with three different poses of the Megaman character, and a button to "Add new frame". To the right of the canvas is a "Layers" panel with two layers: "Layer 1" and "Layer 2". At the bottom of the interface, the text "Pixel Art and Animated Sprites" is written in a yellow, pixelated font. Below this, there is a yellow button that says "Create a Sprite".

Pixel Art and Animated Sprites

Remember the good old 2D games and their beautiful sprites ? With Piskel you can create your own in a few clicks.

Create a Sprite

Graphic tools

- Design
- Draw
- Paint
- Retouch
- Model
- Animate

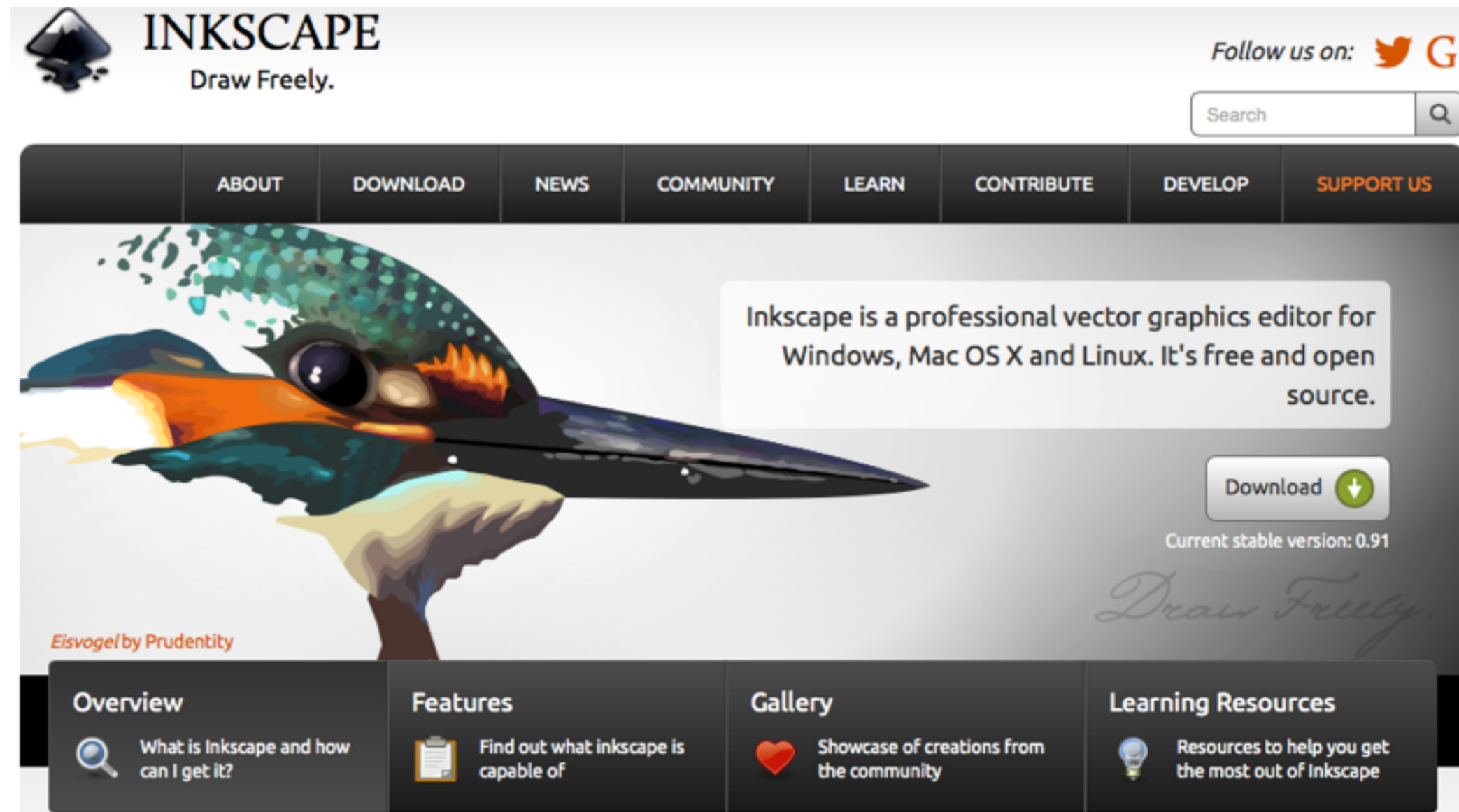
<http://www.pixenapp.com>
<http://www.piskelapp.com>
<http://www.gimp.org>
<https://inkscape.org>
<http://www.blender.org>
<http://esotericsoftware.com>
<http://www.brashmonkey.com/index.htm>



The screenshot shows the official GIMP website homepage. At the top, there is an orange header with the GIMP logo and the text "GNU Image Manipulation Program". Below the header is a large banner featuring a close-up of several paintbrushes. The banner includes the "gimp 2.8" logo, a "Release Notes" button, and a "Download" button with a green download icon. Below the banner, there is a paragraph of text describing GIMP as a freely distributed software for tasks like photo retouching, image composition, and image authoring. Further down, another paragraph explains that this is the official GIMP website, providing information on downloading, installing, and using the software. At the bottom, there is a section for the "LIBRE GRAPHICS MEETING 2015" held on "2015-02-27". This section includes a small GIMP logo and text stating that participation is gratis and open to all, and that donations from supporters subsidize travel costs for participants. On the right side of the page, there is a dark sidebar with a menu of links: News, Screenshots, Features, Downloads, Documentation, Get Involved, Plug-in Registry, GIMP Development, and Donations. Under the Donations section, there are two buttons: a green "Flattr" button showing a count of "6848" and an orange "bitcoin" button with a Bitcoin icon.

Graphic tools

- Design
- Draw
- Paint
- Retouch
- Model
- Animate

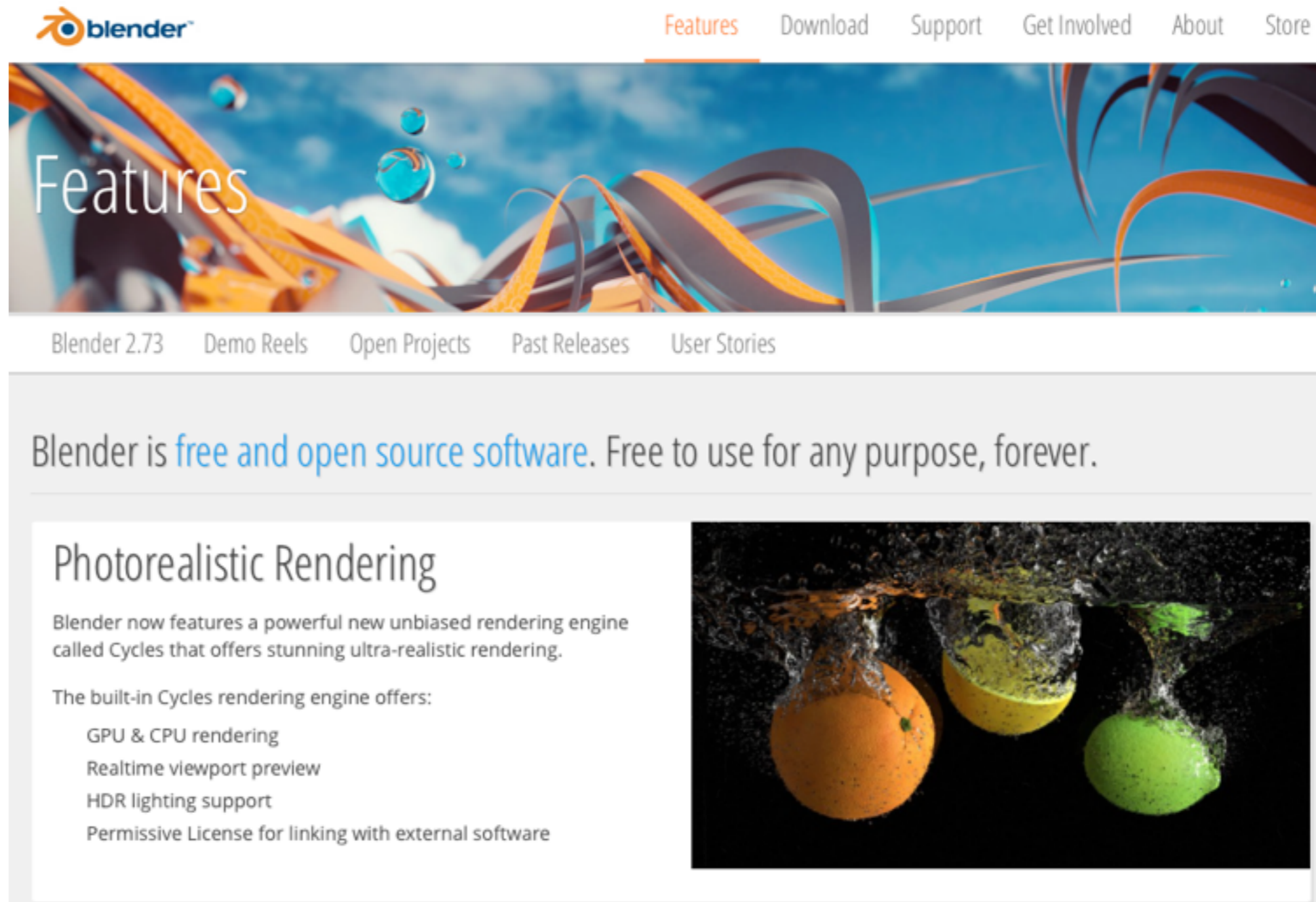


<http://www.pixenapp.com>
<http://www.piskelapp.com>
<http://www.gimp.org>
<https://inkscape.org>
<http://www.blender.org>
<http://esotericsoftware.com>
<http://www.brashmonkey.com/index.htm>

Graphic tools

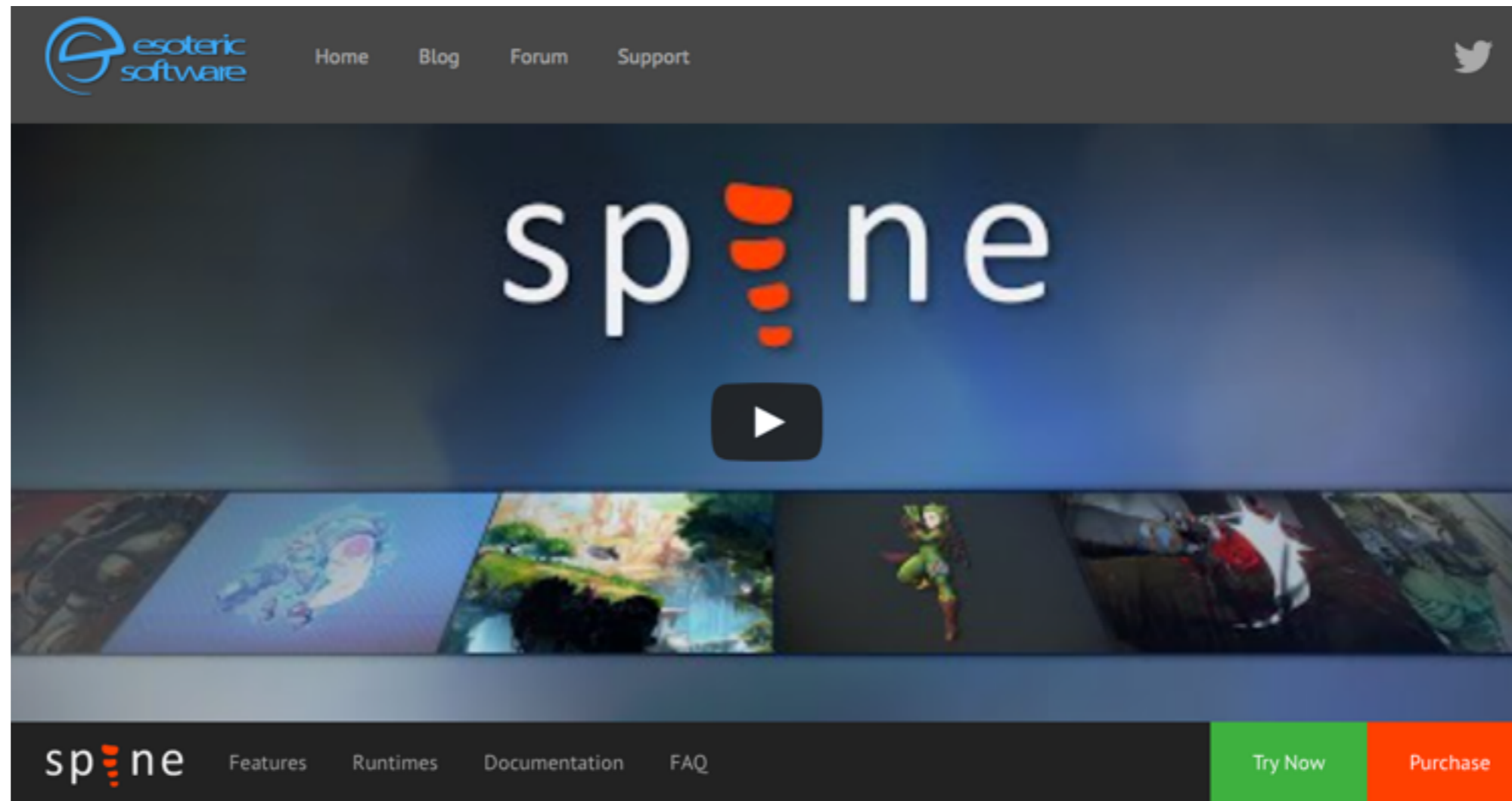
- Design
- Draw
- Paint
- Retouch
- Model
- Animate

<http://www.pixenapp.com>
<http://www.piskelapp.com>
<http://www.gimp.org>
<https://inkscape.org>
<http://www.blender.org>
<http://esotericsoftware.com>
<http://www.brashmonkey.com/index.htm>

A screenshot of the Blender website's 'Features' page. The top navigation bar includes the Blender logo, 'Features' (highlighted), 'Download', 'Support', 'Get Involved', 'About', and 'Store'. Below the navigation is a large banner image with the word 'Features' overlaid. Underneath the banner are links for 'Blender 2.73', 'Demo Reels', 'Open Projects', 'Past Releases', and 'User Stories'. A grey box contains the text: 'Blender is free and open source software. Free to use for any purpose, forever.' Below this is a section titled 'Photorealistic Rendering' with a description of the Cycles engine and a list of features: GPU & CPU rendering, Realtime viewport preview, HDR lighting support, and Permissive License for linking with external software. To the right of the text is a high-quality rendered image of three fruits (an orange, a yellow lemon, and a green lime) splashing in water against a black background.

Graphic tools

- Design
- Draw
- Paint
- Retouch
- Model
- Animate



<http://www.pixenapp.com>
<http://www.piskelapp.com>
<http://www.gimp.org>
<https://inkscape.org>
<http://www.blender.org>
<http://esotericsoftware.com>
<http://www.brashmonkey.com/index.htm>

Graphic tools

- Design
- Draw
- Paint
- Retouch
- Model
- Animate

<http://www.pixenapp.com>

<http://www.piskelapp.com>

<http://www.gimp.org>

<https://inkscape.org>

<http://www.blender.org>

<http://esotericsoftware.com>

<http://www.brashmonkey.com/index.htm>

BrashMonkey Spriter Art Packs Tutorials Forum Spriter APIs About Links

Spriter Trailer

SPRITER
THE ULTIMATE 3D GAME ANIMATION SOLUTION

Download Now
PC | MAC | LINUX

Buy Spriter Pro
\$59

Game makers

- Effortless
- Fast Dev.
- Very limited
- Look alike



GameMaker: Studio

GameMaker: Studio caters to entry-level novices and seasoned game development professionals equally, allowing them to create cross-platform games in record time and at a fraction of the cost of conventional tools!

In addition to making game development 80 percent faster than coding for native languages, developers can create fully functional prototypes in just a few hours, and a full game in just a matter of weeks.

<https://www.yoyogames.com/studio>

<http://www.rpgmakerweb.com>

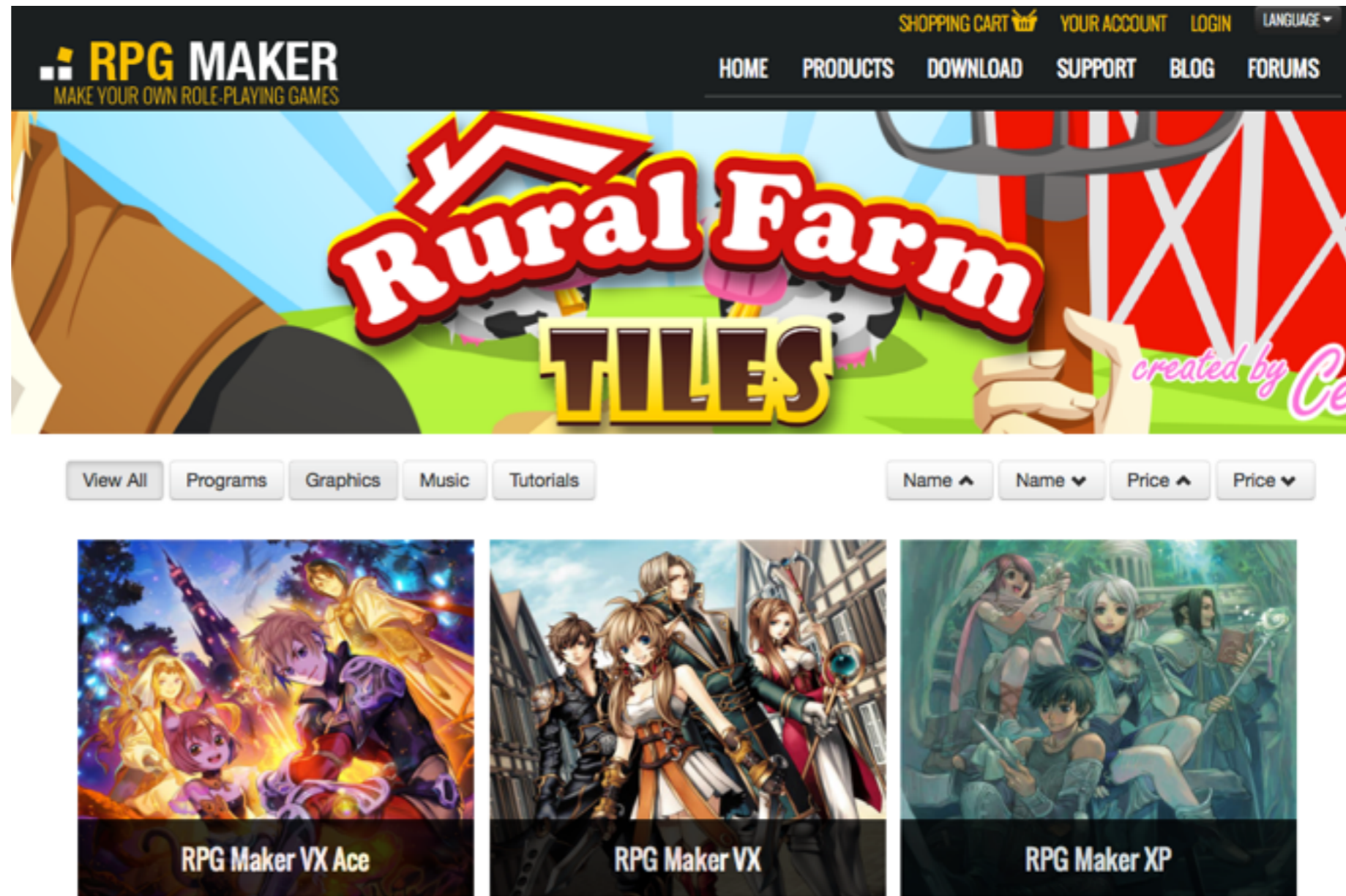
<https://www.scirra.com>

<http://www.kodugamelab.com>

<http://gamesalad.com/download>

Game makers

- Effortless
- Fast Dev.
- Very limited
- Look alike



<https://www.yoyogames.com/studio>
<http://www.rpgmakerweb.com>
<https://www.scirra.com>
<http://www.kodugamelab.com>
<http://gamesalad.com/download>

Game makers

- Effortless
- Fast Dev.
- Very limited
- Look alike

<https://www.yoyogames.com/studio>
<http://www.rpgmakerweb.com>
<https://www.scirra.com>
<http://www.kodugamelab.com>
<http://gamesalad.com/download>



The banner features the Scirra logo at the top left, with navigation links for Construct 2, Manual, Tutorials, Store, Arcade, Blog, Forums, and Education. On the right, there are social media icons for Facebook (17,633 likes), Twitter (@Scirra), and Google+ (7,512). The main text reads "Create Games EASILY" and "Construct 2 lets YOU make advanced games!". Below this are "Buy Now" and "Free Download" buttons, and a link to "Or learn more about Construct 2". A video player shows a game scene with a play button and a "YouTube" logo.

No Programming Required!

You can now make advanced games without writing a line of code. Construct 2 does the hard work so you don't have to.

Our highly intuitive event system makes putting your games together quick and easy.

You've finally found it. The powerful, full featured and professional game development software you've always been looking for.

[Learn More](#) [Download Now](#)



The screenshot shows the Construct 2 software interface. It features a central workspace with a game scene, a left-hand panel for object and event management, and a right-hand panel for the event system. The interface is designed to be user-friendly and intuitive for game development.

Game makers

- Effortless
- Fast Dev.
- Very limited
- Look alike

<https://www.yoyogames.com/studio>
<http://www.rpgmakerweb.com>
<https://www.scirra.com>
<http://www.kodugamelab.com>
<http://gamesalad.com/download>



Home Worlds Hour of Code Mars Discussion About Resources

03/04/2015

Hour of Kodu for Parents

After a school day and a day work, we dedicate one hour for Coding. Students with 9/10 years and respective parents share ideas and knowledge on how to create games in Kodu. A very interesting and enriching day, for students supporting parents to plan for parents who took the first steps in code and for me as a teacher. Thanks to these innovative students Depois de um dia de aulas e de um dia de trabalho, ainda dedicamos uma hora à programação. Alunos com 9 / 10 anos e respetivos pais partilharam ideias e saberes sobre como criar jogos em Kodu. Um final de dia muito interessante e enriquecedor, para os alunos que apoiaram os pais a programar para os pais que deram os primeiros passos na programação e para mim enquanto professor. Obrigado a estes alunos inovadores! [Read more here!](#)

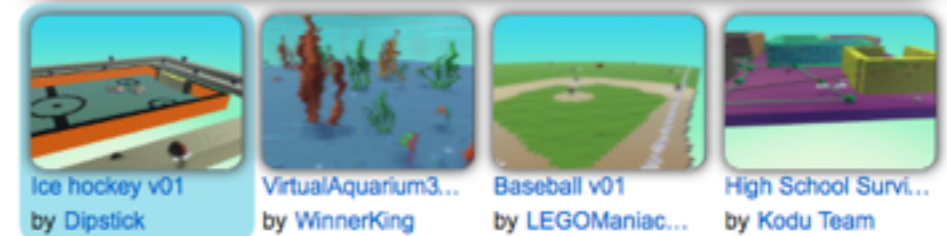
Like 5 Tweet 4

03/02/2015

Kodu on Business World

Recently repeated - Business World by Propeller TV - Episode 6 - Technology in Education - Nicki Cooper (nee Maddams) explains why Kodu is perfect for introducing programming into the curriculum. This is a great video to use to explain to anybody, why use Kodu. [Read more here!](#)

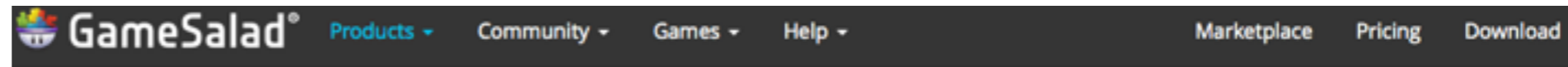
Featured Worlds



Game makers

- Effortless
- Fast Dev.
- Very limited
- Look alike

<https://www.yoyogames.com/studio>
<http://www.rpgmakerweb.com>
<https://www.scirra.com>
<http://www.kodugamelab.com>
<http://gamesalad.com/download>



Download GameSalad Creator

v. 0.13.7 beta — for Mac

Download GameSalad Creator for free to get the world's fastest game design engine and cross-platform publishing tool. Learn to make and publish hit games on iPhone, iPad, Android, Tizen, Mac, Windows 8 & HTML5. Drag and drop. No coding required.

Enter your email. We'll need that to set up your account.

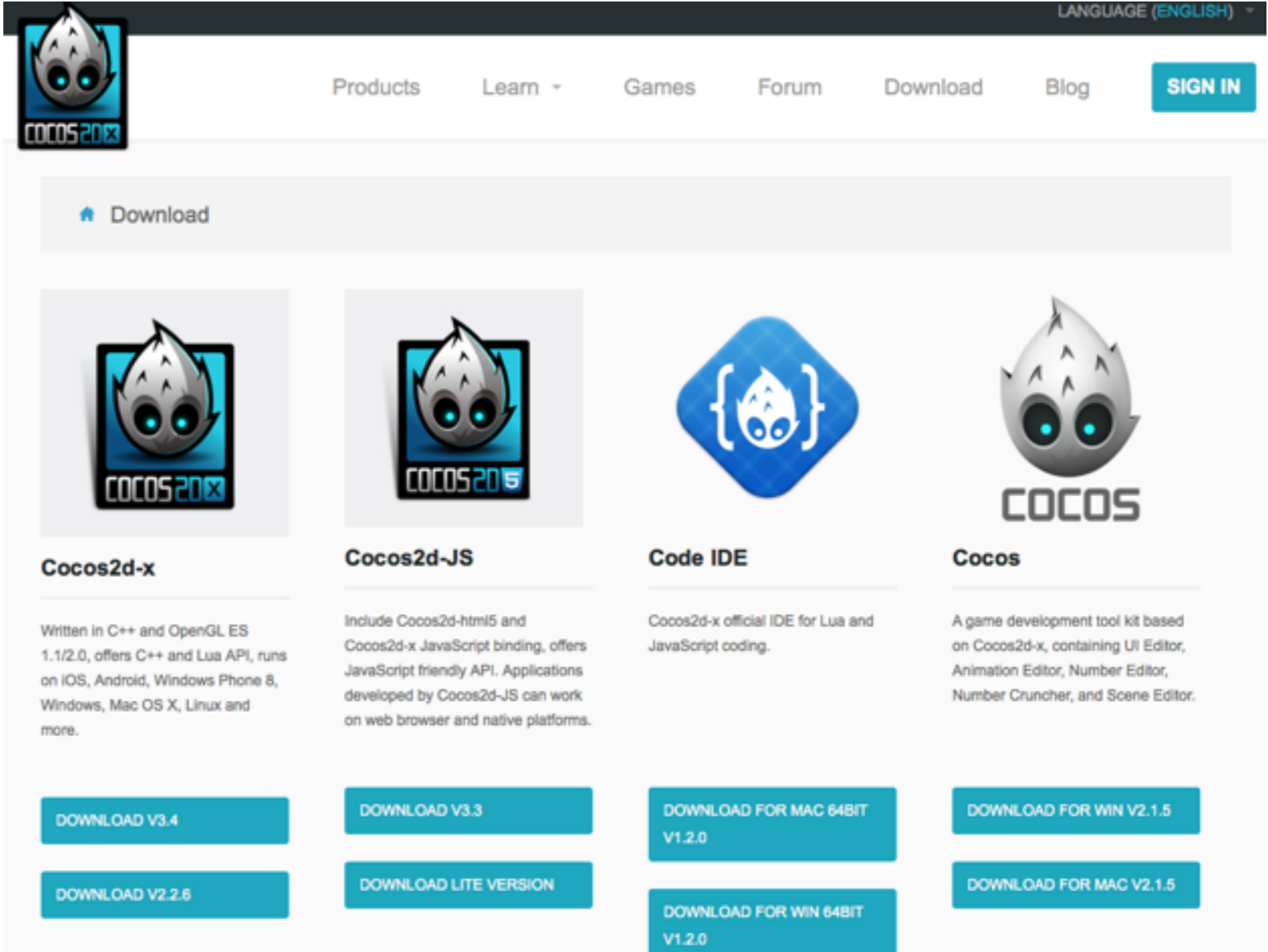
Enter your email

What are your goals for using GameSalad? (optional, check all that apply)

- Learn how to make a game
- Create a game for others to play
- Publish and sell games in app stores
- Develop apps for clients
- Other

Game engines

- Scripts
- All in one
- Middleware
- Some limited
- Reduce time
- Core game, rendering, audio, physic, AI engines



The screenshot shows the Cocos2d-x website with a navigation bar including 'Products', 'Learn', 'Games', 'Forum', 'Download', 'Blog', and a 'SIGN IN' button. The main content area features a 'Download' section with four product cards:

- Cocos2d-x**: Written in C++ and OpenGL ES 1.1/2.0, offers C++ and Lua API, runs on iOS, Android, Windows Phone 8, Windows, Mac OS X, Linux and more. Download buttons for V3.4 and V2.2.6.
- Cocos2d-JS**: Include Cocos2d-html5 and Cocos2d-x JavaScript binding, offers JavaScript friendly API. Applications developed by Cocos2d-JS can work on web browser and native platforms. Download buttons for V3.3 and LITE VERSION.
- Code IDE**: Cocos2d-x official IDE for Lua and JavaScript coding. Download buttons for MAC 64BIT V1.2.0 and WIN 64BIT V1.2.0.
- Cocos**: A game development tool kit based on Cocos2d-x, containing UI Editor, Animation Editor, Number Editor, Number Cruncher, and Scene Editor. Download buttons for WIN V2.1.5 and MAC V2.1.5.

<http://www.cocos2d-x.org>

<http://box2d.org>

<http://www.garagegames.com/products/torque-2d>

<https://coronalabs.com>

<http://www.garagegames.com/products/torque-3d>

<http://unity3d.com/5>

<https://www.unrealengine.com>

<http://www.blender.org/features/>

Game engines

- Scripts
- All in one
- Middleware
- Some limited
- Reduce time
- Core game, rendering, audio, physic, AI engines

Box2D

A 2D Physics Engine for Games

[About](#) [Downloads](#) [Documentation](#) [Forum](#) [Contributors](#) [Links](#)

GDC 2015 Physics Tutorial

3

Posted on [March 7, 2015](#)

Thanks to everyone that attended the GDC Physics Tutorial in San Francisco. I'm really proud of the work done by the tutorial team!

You can download the tutorials here: [downloads](#).

Some of the talks have a Keynote version where you can see the embedded animations and videos. The tutorial was recorded on video and should be viewable on the GDC Vault in the next couple weeks.

Posted in [Uncategorized](#) | [3 Replies](#)



SUPPORT BOX2D

[Donate](#)

TWITTER

[twitter](#)

<http://www.cocos2d-x.org>

<http://box2d.org>

<http://www.garagegames.com/products/torque-2d>

<https://coronalabs.com>

<http://www.garagegames.com/products/torque-3d>

<http://unity3d.com/5>

<https://www.unrealengine.com>

<http://www.blender.org/features/>

Game engines

- Scripts
- All in one
- Middleware
- Some limited
- Reduce time
- Core game, rendering, audio, physic, AI engines



Features

Torque 2D is an extremely powerful, flexible, and fast open source engine dedicated to 2D game development. The MIT licensed version of Torque 2D is now available on GitHub.

Cross Platform Development at Its Best

Torque 2D was developed with OS X, Windows, and iOS devices in mind and works equally well on all the platforms. As with all of our products, Torque 2D includes the complete C++ source code to the engine and many example toys. It also includes access to TorqueScript, our scripting language which allows developers to write the same gameplay logic on Windows or OS X and have it work on the other platforms!

Graphics

Torque 2D's powerful rendering is perfectly suited to achieving a great looking artistic style. Torque 2D's graphics API includes implementations for all types of hardware and operating systems performing on more than 99% of all gamer hardware ([Steam Hardware Survey](#)).

<http://www.cocos2d-x.org>

<http://box2d.org>

<http://www.garagegames.com/products/torque-2d>

<https://coronalabs.com>

<http://www.garagegames.com/products/torque-3d>

<http://unity3d.com/5>

<https://www.unrealengine.com>

<http://www.blender.org/features/>

Game engines

- Scripts
- All in one
- Middleware
- Some limited
- Reduce time
- Core game, rendering, audio, physic, AI engines

Start Building ▾ Products ▾ Pricing Resources ▾ Blog

Search Sign-in Download

A FusePowered Company

Corona SDK is now Free

iOS Android kindle Windows Phone OS X

Build 10x Faster

Corona's **extensive API library** enables everything from animation to networking with just a few lines of code.

Whether you're building **games** or **business apps**, you see changes instantly in the Corona Simulator and can iterate extremely quickly. Development is done in Lua, a lightning-fast and easy to learn scripting language.

Couple Corona with **Corona Editor** and/or **Composer GUI** you'll achieve even faster workflow.

<http://www.cocos2d-x.org>

<http://box2d.org>

<http://www.garagegames.com/products/torque-2d>

<https://coronalabs.com>

<http://www.garagegames.com/products/torque-3d>

<http://unity3d.com/5>

<https://www.unrealengine.com>

<http://www.blender.org/features/>

Game engines

- Scripts
- All in one
- Middleware
- Some limited
- Reduce time
- Core game, rendering, audio, physic, AI engines

<http://www.cocos2d-x.org>

<http://box2d.org>

<http://www.garagegames.com/products/torque-2d>

<https://coronalabs.com>

<http://www.unrealengine.com>

<http://www.blender.org/features/>

<https://www.unrealengine.com>
<http://www.blender.org/features/>

GarageGames
Home Products Store Community Support Services Education Company

Search site

Cart Login Register

TORQUE 3D™

Download Binary

Download Source **github**
SOCIAL CODING

Features Getting Started FPS Tutorial Guides Documentation Forums Add-Ons Resources Licensing

GarageGames is proud to announce
TORQUE 3D
now available as MIT open source software

Watch The Trailer Beginner Tutorial Torque 3D Store

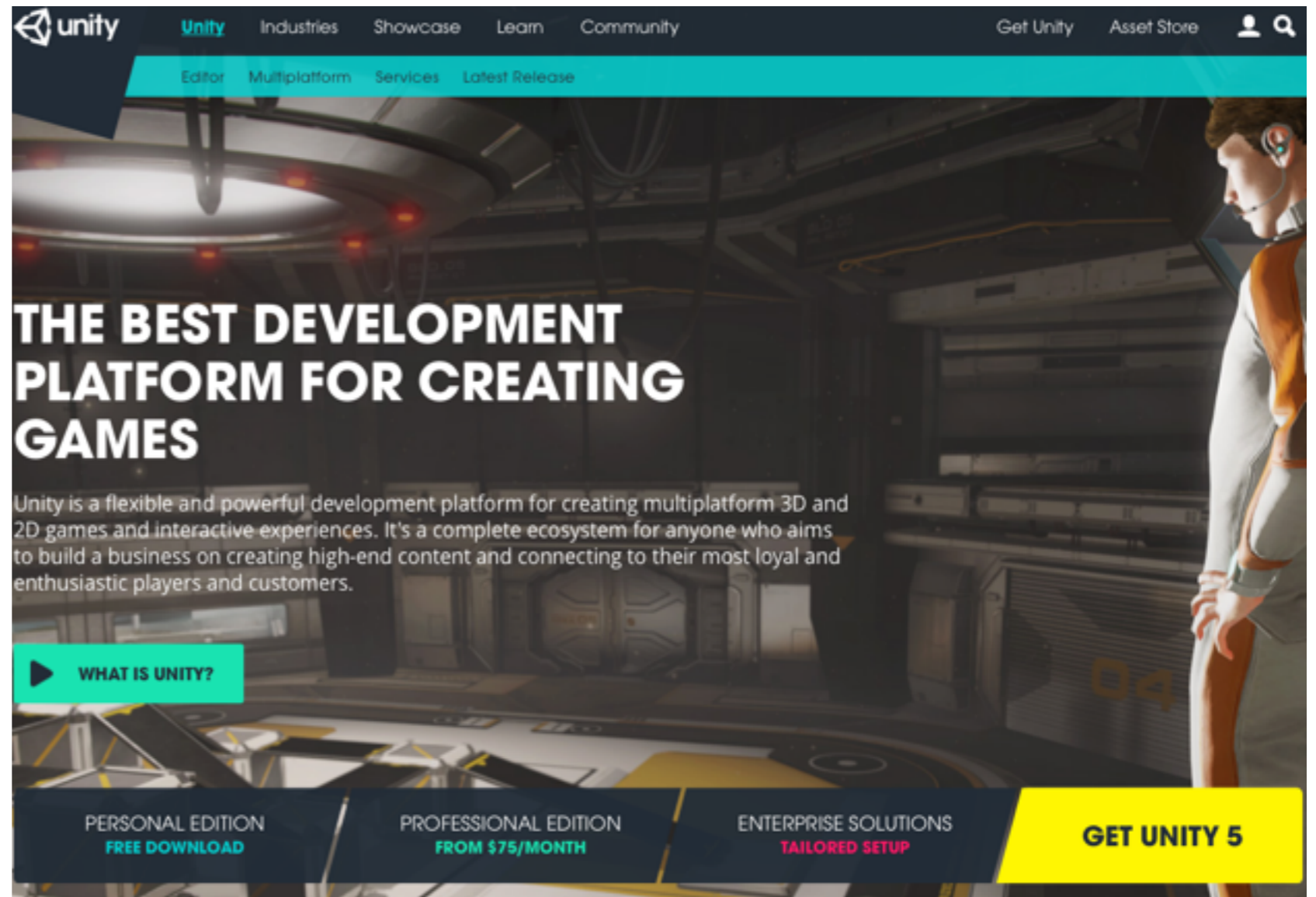
Learn more about Torque 3D Features

Torque 3D is the best full source, open source solution available. It is also our flagship engine built on the core strengths of our Front Line Award-winning Torque Game Engine Advanced. Torque 3D has been re-architected for maximum flexibility and performance across a wide-range of hardware. Torque 3D comes equipped with a full suite of tools to allow your team to excel and produce high-quality games and simulations. Torque 3D supports Windows and Browser-based web deployment out of the box.

EDITOR ASSET PIPELINE TERRAIN PHYSICS

Game engines

- Scripts
- All in one
- Middleware
- Some limited
- Reduce time
- Core game, rendering, audio, physic, AI engines



<http://www.cocos2d-x.org>

<http://box2d.org>

<http://www.garagegames.com/products/torque-2d>

<https://coronalabs.com>

<http://www.garagegames.com/products/torque-3d>

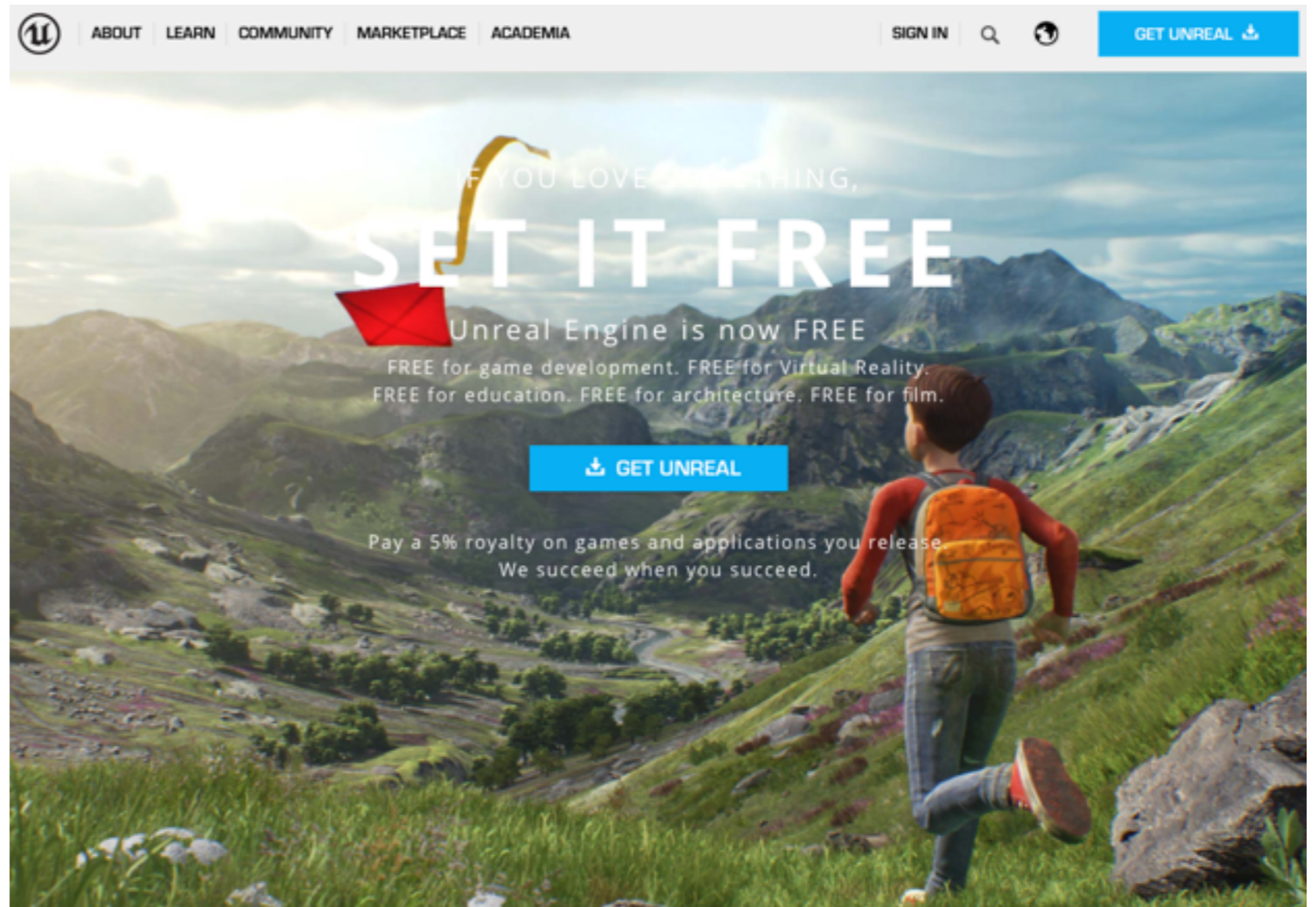
<http://unity3d.com/5>

<https://www.unrealengine.com>

<http://www.blender.org/features/>

Game engines

- Scripts
- All in one
- Middleware
- Some limited
- Reduce time
- Core game, rendering, audio, physic, AI engines



<http://www.cocos2d-x.org>

<http://box2d.org>

<http://www.garagegames.com/products/torque-2d>

<https://coronalabs.com>

<http://www.garagegames.com/products/torque-3d>

<http://unity3d.com/5>

<https://www.unrealengine.com>

<http://www.blender.org/features/>

Game engines

- Scripts
- All in one
- Middleware
- Some limited
- Reduce time
- Core game, rendering, audio, physic, AI engines



Features Download Support Get Involved About Store



Game Creation

Included in Blender is a complete game engine, allowing you to create a fully featured 3d game right inside Blender.

The game engine includes:

- Ability to port your models to any third-party game engine
- Create or code your own game logic
- Full [Bullet Physics](#) integration
- Python scripting API for advanced control and AI
- Support for all OpenGL™ dynamic lighting, toon shading, animated materials as well as Normal and Parallax Mapping
- Playback of games inside Blender without compiling or preprocessing
- 3D spatial audio using OpenAL

<http://www.cocos2d-x.org>

<http://box2d.org>

<http://www.garagegames.com/products/torque-2d>

<https://coronalabs.com>

<http://www.garagegames.com/products/torque-3d>

<http://unity3d.com/5>

<https://www.unrealengine.com>

<http://www.blender.org/features/>

Professional services

- Motion Capture
- Cinematic scene and trailer
- Song composer
- Voice actor
- Testing

Game testing

- V & V (verification and validation) method
- Platform & performance test
- Outsourcing
- Alpha test
- Beta test
- Hand-on & preview

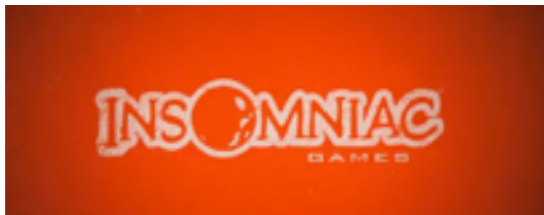
Advanced topics



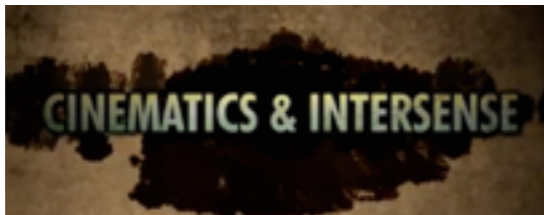
Push beyond the limit



Motion capture for the masses



Motion capture for studio



Physical camera in game



<https://www.youtube.com/watch?v=-eu53v5LnmM>

Conclusions

- Design first!
- Development tools may limit your imagination.
- Picks the right one that can support your design
- Most game tools are now free

“Think first development”

Witcha Feungchan