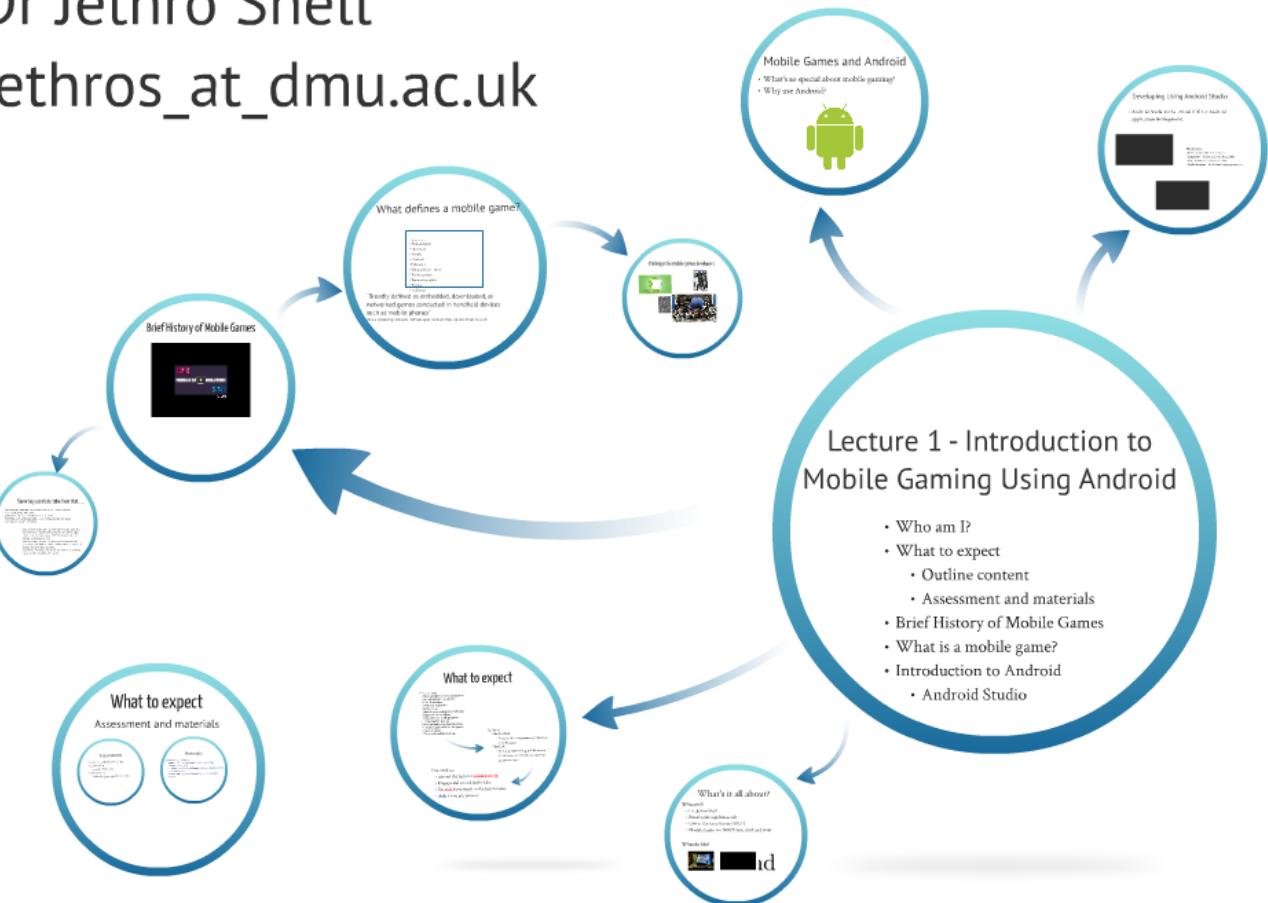


Mobile Games Development 2015/16 - Lecture 1

Dr Jethro Shell

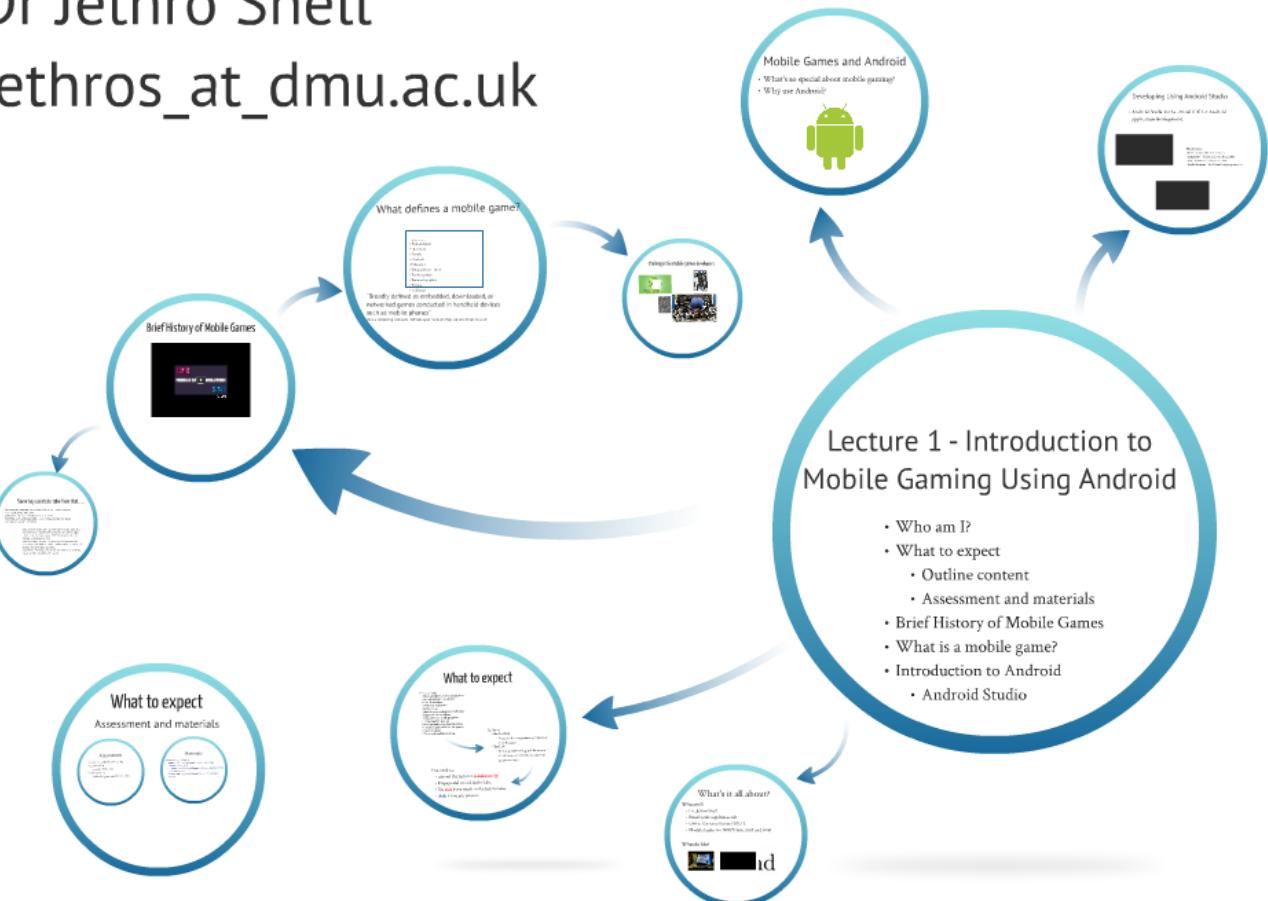
jethros_at_dmu.ac.uk



Mobile Games Development 2015/16 - Lecture 1

Dr Jethro Shell

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What's it all about?

Who am I?

- Dr. Jethro Shell
- Email: jethros@dmu.ac.uk
- Office: Gateway House GH5.12
- Module leader for IMAT1606, 2608 and 3608

What do I do?



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What do I do?



Towards Fuzzy Transfer Learning
for Intelligent Environments

Adam Shalizi and Steven Gagné
De Montfort University
Gateway House, Leicester, United Kingdom
E-mail: adam.shalizi@dmu.ac.uk
<http://www.dmu.ac.uk>

Abstract. By their very nature, Intelligent Environments (IEs) are created to interact with their environment. In order to do this, they need access to sensors and actuators to receive the type and availability of data to make their application run as a single unit. The use of transfer learning has been proposed and evaluated across the various environments in the computer science field, with particular emphasis on the reinforcement learning paradigm, which attempts to provide a more a model of the environment. Intelligent environments have been proposed as a way to increase the efficiency and cost effectiveness of the design and development of intelligent systems and also to reduce the costs of the design and development. There can be many different ways to implement transfer learning, but the main idea is to reuse the knowledge learned in one environment and apply it to another environment, where the knowledge can be reused. In this paper we propose a framework to evaluate transfer learning through the use of two sets of environments.

- Module leader for

What do I do?





**WE CAN JUMP WITH ANOTHER
EYE GESTURE**

YouTube

Unity Web Player | DMU Wheelchair Simulator



« created with [Unity](#) »

Towards Fuzzy Transfer Learning for Intelligent Environments

Jethro Shell and Simon Coupland

De Montfort University,
Gateway House, Leicester, United Kingdom
JethroS@dmu.ac.uk,
SimonC@dmu.ac.uk
<http://www.dmu.ac.uk>

Abstract. By their very nature, Intelligent Environments (IE's) are infused with complexity, unreliability and uncertainty due to a combination of sensor noise and the human element. The quantity, type and availability of data to model these applications can be a major issue. Each situation is contextually different and constantly changing. The dynamic nature of the implementations present a challenging problem when attempting to model or learn a model of the environment. Training data to construct the model must be within the same feature space and have the same distribution as the target task data, however this is often highly costly and time consuming. There can even be occurrences where a complete lack of labelled target data occurs. It is within these situations that our study is focussed. In this paper we propose a framework to dynamically model IE's through the use of data sets from differing feature spaces and domains. The framework is constructed using a novel Fuzzy Transfer Learning (FuzzyTL) process.

The use of a FuzzyTL algorithm allows for a source of labelled data to improve the learning of an alternative context task. We will demonstrate the application of an Fuzzy Inference System (FIS) to produce a model from a source Intelligent Environment (IE) which can provide the knowledge for a differing target context. We will investigate the use of FuzzyTL within differing contextual distributions through the use of temporal and spatial alternative domains.

Keywords: Fuzzy Logic, Transfer Learning, Intelligent Environments, Ambient Intelligence, Context-Aware.

1 Introduction

Intelligent Environments have emerged in a number of different implementations across applications and domains changing the way in which we approach and use our world. Military [3][9], domestic [1] and healthcare [2][23] applications are all emerging. The hugely dynamic implementations and fluid environments can cause issues as they yield inherently uncertain datasets. The dominant techniques of data mining [6][2] and supervised learning encounter issues when modelling

Lecture 1 - Introduction to Mobile Gaming Using Android

- Who am I?
- What to expect
 - Outline content
 - Assessment and materials
- Brief History of Mobile Games
- What is a mobile game?
- Introduction to Android
 - Android Studio

What to expect

Course content:

- Business plans and monetisation.
- Introduction to Android.
- User Interfaces.
- Android Activities.
- Game Loop.
- Sprites, animation and collision.
- Input and controllers.
- Introduction to 3D graphics.
- AI for mobile games.
- Storing and using data in games.
- Location information for games.
- Optimisation.
- Future of mobile gaming.

Delivery:

• 1hr Lecture

- Focus on the programming aspects of mobile games.

• 2hr Lab

- Mix of programming and discussion / group exercises (mainly focussed on programming).

You need to:

- Attend the lectures **consistently**.
- Engage and attend in the labs.
- Do **not** leave work to the last minute.
- **Ask** if you are unsure.

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- Mix of programs, group exercises, programming)

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What to expect

Assessment and materials

Assessment

- Assessment of the module is split:
- Coursework #1
 - Elevator Pitch - 30%
- Coursework #2
 - Individual game construction - 70%

Materials

Books available in the library:

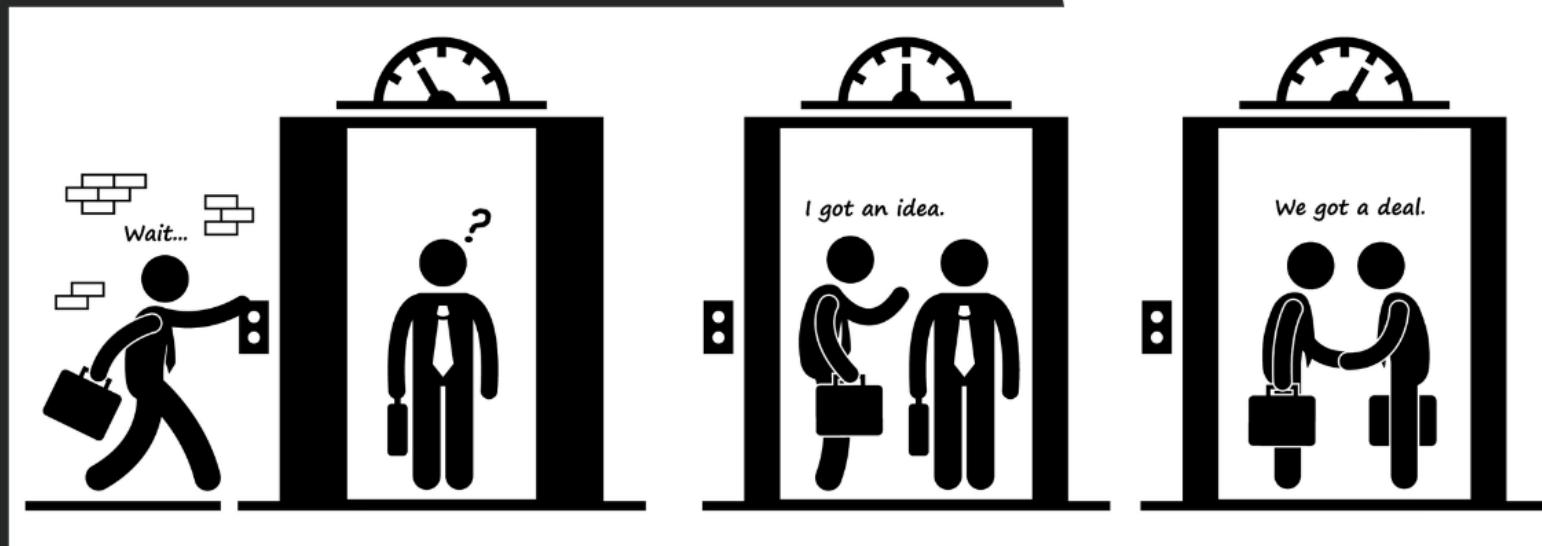
- Zigurd et al : Programming Android (not focused on game development but useful)
- DiMarzio: Android 4 Games Development (General walk through of a game development)
- Zechner: Beginning Android Games (Good overall discussion of subjects)

Assessment

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- Coursework #1
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Elevator Pitch:

- Group project of 2 - 3 people.
- Design a game based on a theme.
- Pitch the game to the lab manager.
- Presentation.
- Monetisation strategy for the game.



Assessment

- Assessment of the module is split:
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Game Construction:

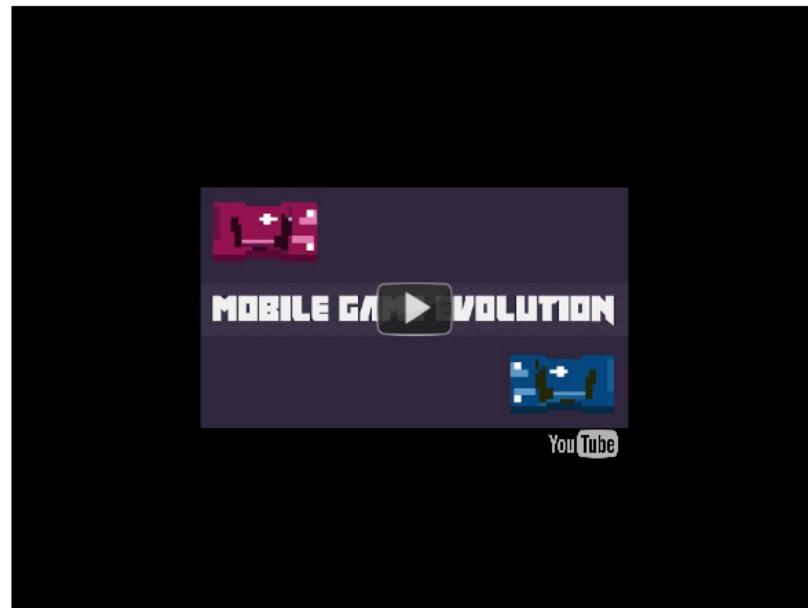
- Individual coursework submission.
- Implement the elevator pitch.
- Construct a mobile game using Android.
- No use of cross platform engines.

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Brief History of Mobile Games

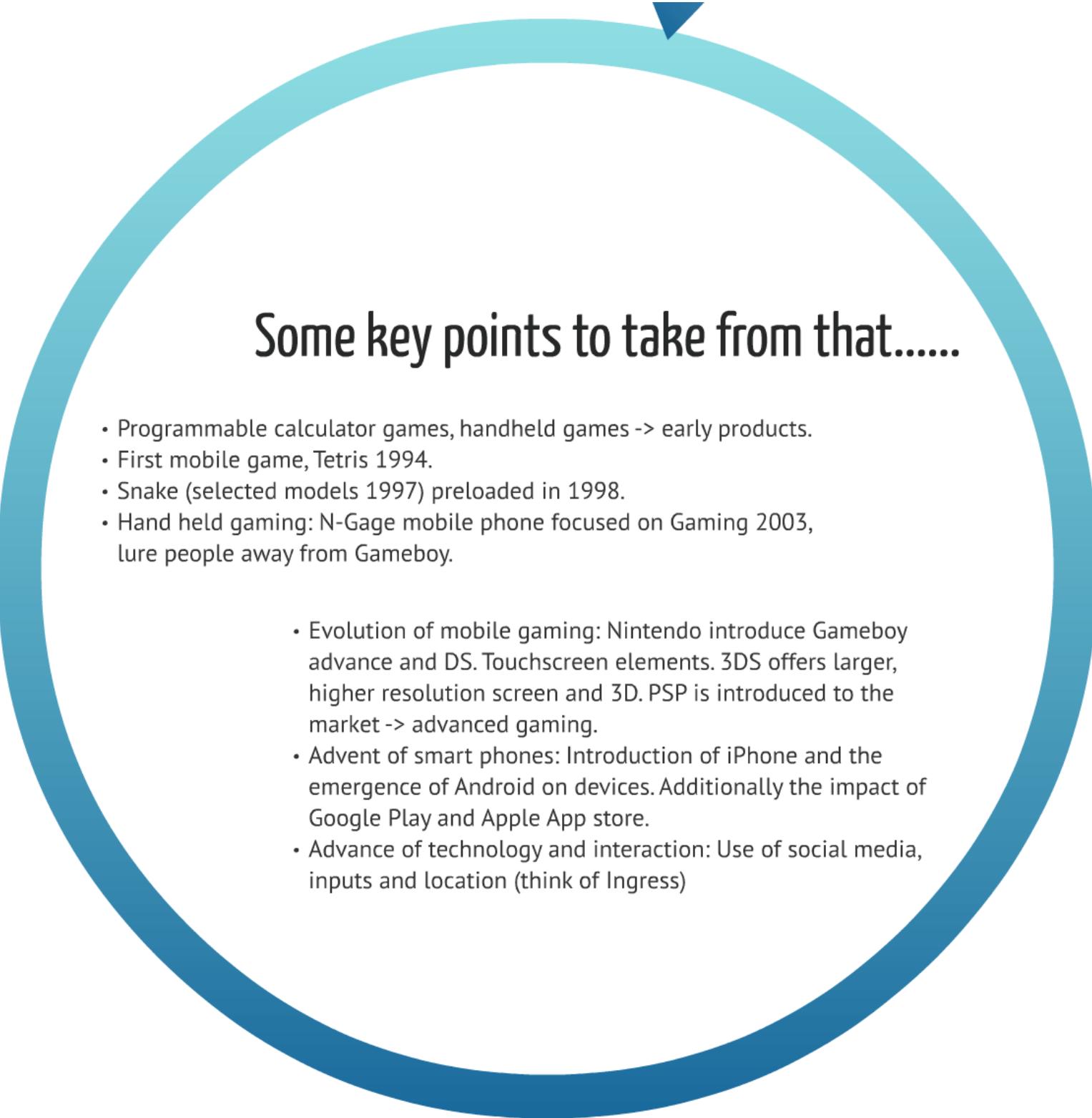




MOBILE GAME EVOLUTION



You Tube



Some key points to take from that.....

- Programmable calculator games, handheld games -> early products.
- First mobile game, Tetris 1994.
- Snake (selected models 1997) preloaded in 1998.
- Hand held gaming: N-Gage mobile phone focused on Gaming 2003, lure people away from Gameboy.
- Evolution of mobile gaming: Nintendo introduce Gameboy advance and DS. Touchscreen elements. 3DS offers larger, higher resolution screen and 3D. PSP is introduced to the market -> advanced gaming.
- Advent of smart phones: Introduction of iPhone and the emergence of Android on devices. Additionally the impact of Google Play and Apple App store.
- Advance of technology and interaction: Use of social media, inputs and location (think of Ingress)

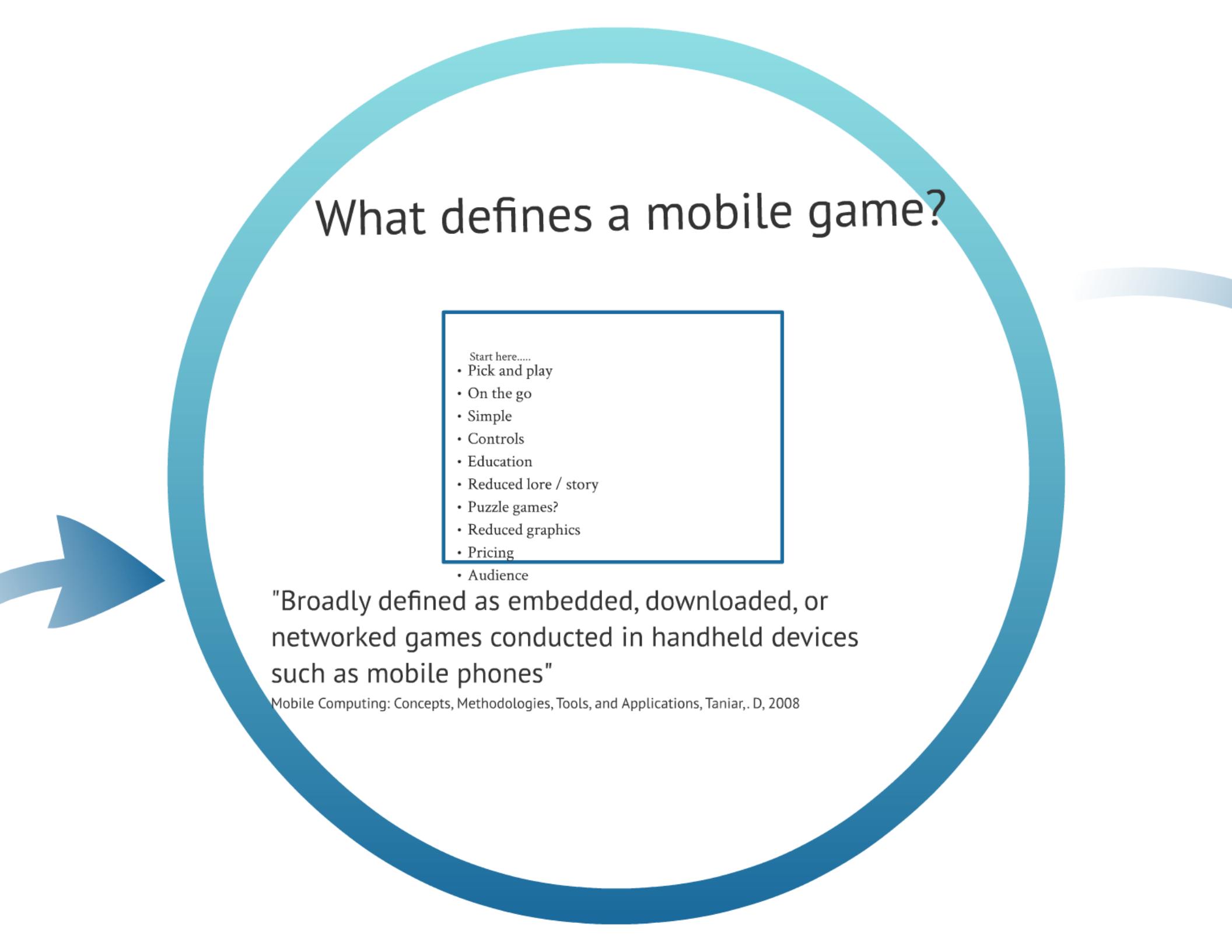
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What defines a mobile game?

- 
- Start here....
- Pick and play
 - On the go
 - Simple
 - Controls
 - Education
 - Reduced lore / story
 - Puzzle games?
 - Reduced graphics
 - Pricing
 - Audience

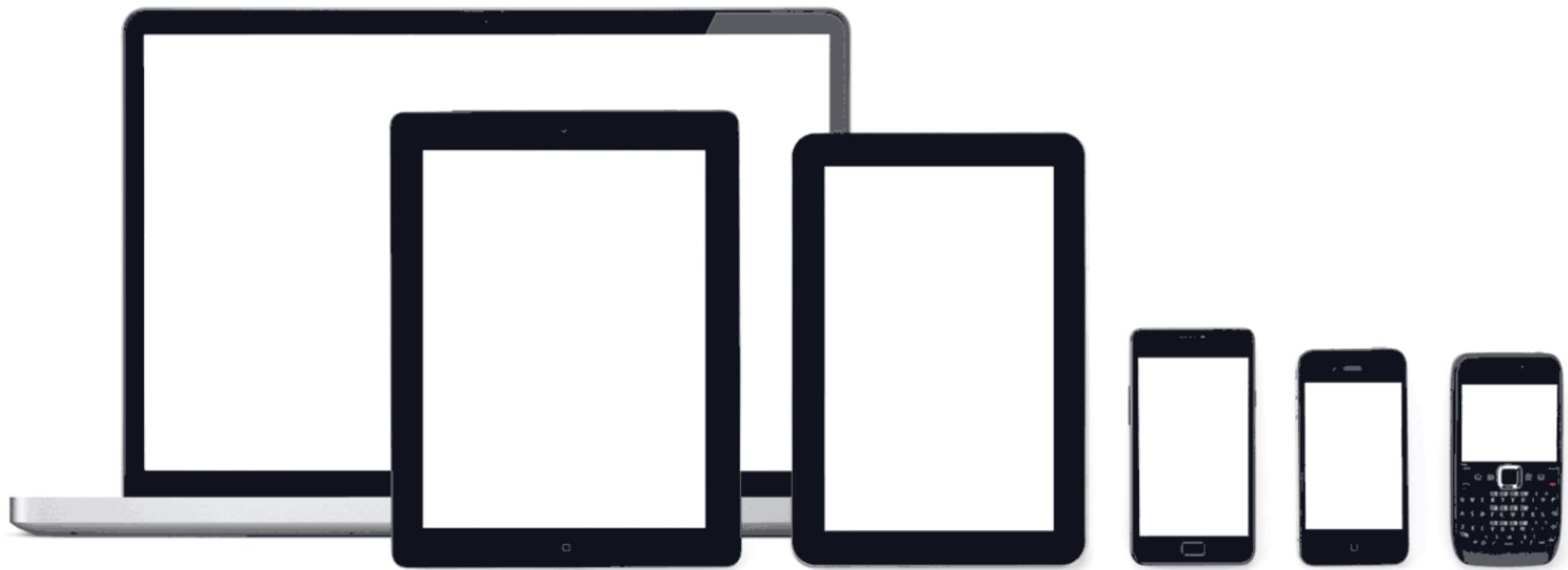
"Broadly defined as embedded, downloaded, or networked games conducted in handheld devices such as mobile phones"

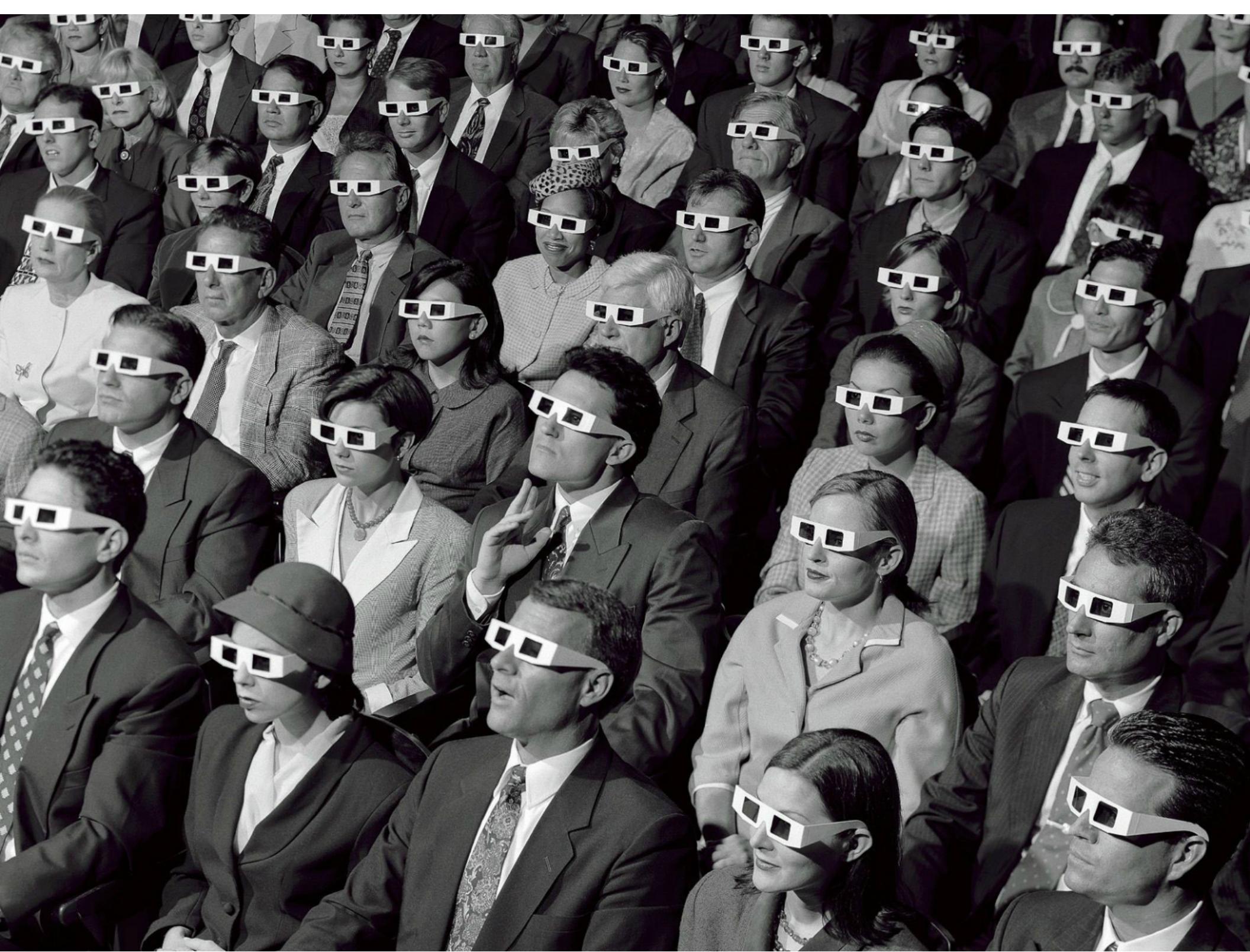
Mobile Computing: Concepts, Methodologies, Tools, and Applications, Taniar,. D, 2008

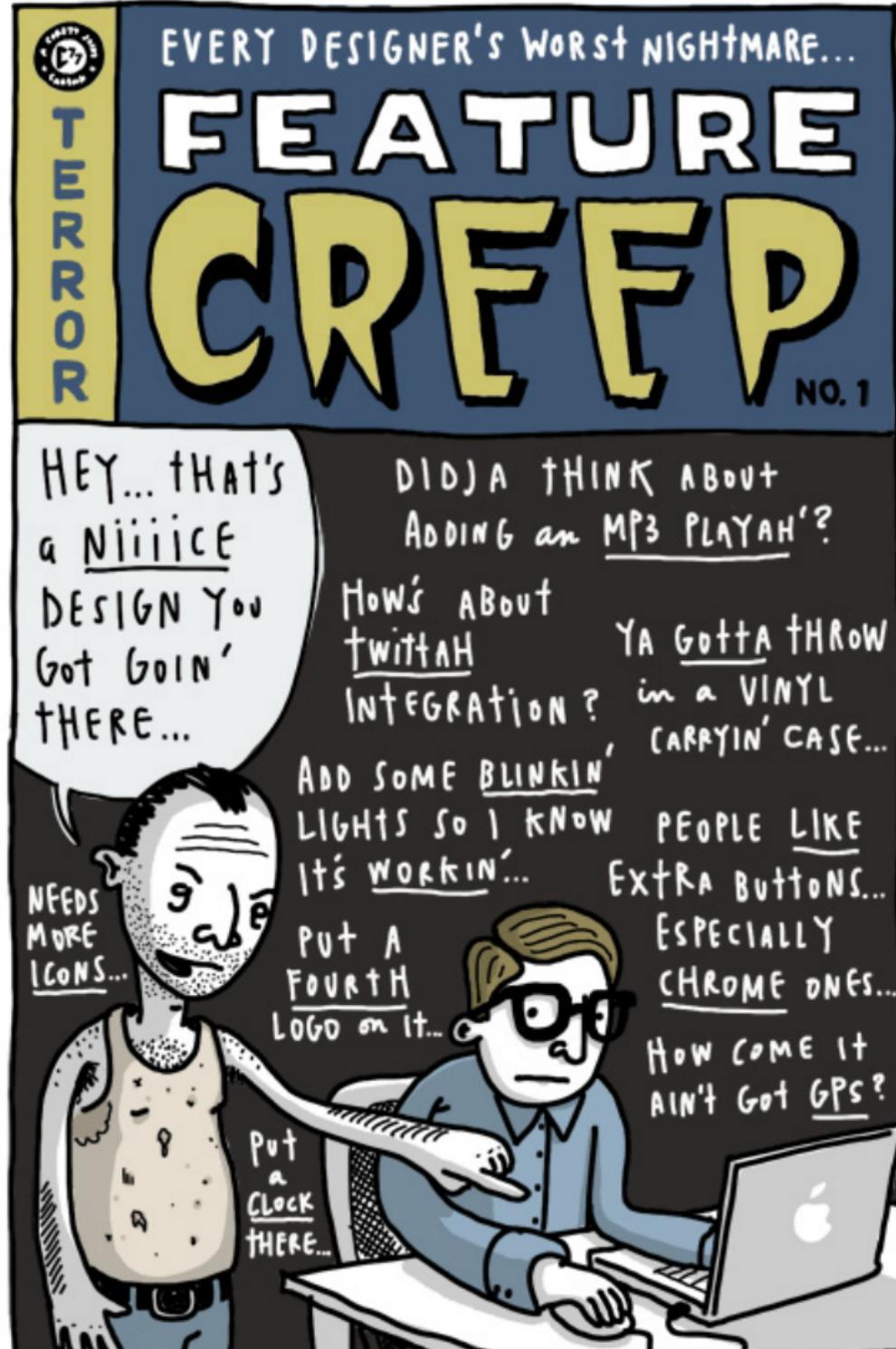
Challenges for mobile games developers











FUELED BY COFFEE



Mobile Games and Android

- What's so special about mobile gaming?
- Why use Android?



- Mobile gaming was big before IOS and Android.
- Smart phones and tablet changed mobile gaming.
- Dedicated market places for applications.
- Ubiquitous, "device in your pocket" gaming.
- Multiple input modalities: GPS, accelerometer, multi-touch.
- Gaming no longer confined to hardcore gamers.
- Changing developers strategies: indie, freemium etc.

Mobile Games and Android

- What's so special about mobile gaming?
- Why use Android?



- Worldwide, over 82% of smartphones in Q2 of 2015 were shipped with Android according to IDC.
- Most of Android code is open-source under Apache License 2.
- Android language is heavily based on Java.
- Java is an object orientated (OO) language which allows abstraction of complex concepts.

Mobile Games and Android

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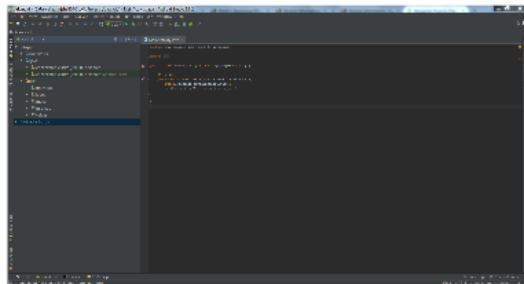




- **Linux Kernel** - Provides basic drivers
- **Runtime and Dalvik** - spawning and running applications.
- **Libraries** - Java SE and C++ libraries
- **Application Framework** - Ties together system libraries and runtime.
- **SDK** - Develop applications for Android.

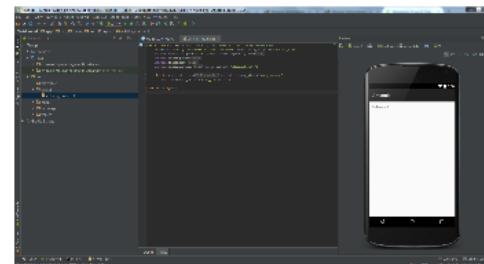
Developing Using Android Studio

- Android Studio is the official IDE for Android application development.



File Structure:

java/ - Source files for the module.
manifests/ - Manifest files for the module.
res/ - Resource files for the module.
Gradle Scripts/ - Gradle build and property files.



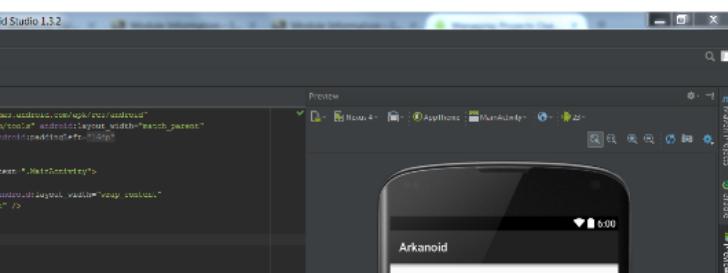
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Arkanoid - [C:\Users\adm-jshell00\StudioProjects\Arkanoid] - [app] - ...\\app\\src\\main\\res\\layout\\activity_main.xml - Android Studio 1.3.2

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

Arkanoid app src main res layout activity_main.xml

MainActivity.java x activity_main.xml

Android

Project

captures

Gradle Scripts

Build Variants

Favorites

Preview

Nexus 4 AppTheme MainActivity

6:00

Arkanoid

Hello world!

Design Text

Event Log Gradle Console

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```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" android:paddingLeft="16dp"
    android:paddingRight="16dp"
    android:paddingTop="16dp"
    android:paddingBottom="16dp" tools:context=".MainActivity">
    <TextView android:text="Hello world!" android:layout_width="wrap_content"
        android:layout_height="wrap_content" />
</RelativeLayout>
```



Android Project Structure Captures Gradle Scripts Build Variants Favorites

```
package com.example.adm_jshell00.arkanoid;

import ...

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

Event Log Gradle Console CRLF: UTF-8 Context: <no context>

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