Augmented Reality

Technical illusions that mix your Reality: Virtual & Real objects meet

"The principal goal of education is to create men and women who are capable of doing new things, not simply repeating what other generations have done."

-Jean Piaget

"Augmented reality is going to be huge. It might even be as big as the Web."

-- Layar cofounder Maarten Lens-FitzGerald

Augmented reality (AR) is a cutting-edge technology that shows impressive promises when it comes to affecting a human's behavior at relevant moments. It allows for a digitally enhanced view of the real world, connecting you with more meaningful content in your everyday life. With the camera and sensors in a smart phone or tablet, AR adds layers of digital information – videos, photos, sounds – directly on top of items in the world around us.

With AR, it is easy to have a great digital experience on top of interactive magazines, ads, packaging, business cards and other items, for e.g. users point a smart phone at an object, like a radio. A Graphical User Interface (GUI) maps digital information onto the surface then an application recognizes the object and intuitively generates a graphical interface to control the object's knobs and buttons or to be programmed from afar. Similarly a person can point their smartpphone at the night sky and view the layout of the stars and planets in their exact locations with full definitions.

Applications: Augmented reality has many applications, and many areas can benefit from the use of AR technology. AR was first used for military, industrial and medical applications, but was soon applied to commercial and entertainment areas. Some of the well known AR devices and applications are:

- Google's Augmented Reality Glasses
- Head Mounted Display/Helmet Mounted Display (HMD) devices
- Google Sky Map
- FETCH! Lunch Rush
- GeoGoggl
- ZooBurst
- Acrossair

These are only a few of the new augmented reality apps & devices. Augmented reality is a trend that is worth following as new apps and technologies are developed to make the computing innovative, interesting and fun. So head start with Technophilia's Augmented Reality workshop to develop different AR apps and give a new direction as well as dimension to your career.

Our Workshops will make you proficient in:

- Understanding AR concepts
- Understanding of basic oops concepts
- Programming with Java in eclipse development environment
- Use of various external libraries
- Programming with processing
- Interfacing NyARToolkit with processing and eclipse
- Creating and designing your own markers
- Using Metaio SDK and Metaio creator
- Developing and practicing on different AR apps

Target Audience:

This Workshop is designed for programmers with sound knowledge of any Objective Oriented Language like C++, Java or knowledge in any open source platform who want to kick start their career in Augmented Reality.

Course Details

Session 1: (4hrs)

Introduction to Java

- Why?
- Variables and constants
- Class, methods and interfaces

Introduction to processing

- What is processing?
- Programming syntax
- Getting started with processing
- NyARToolkit library
- GSVideo plugin

Setting up development environment

- Download and install eclipse
- How to do processing Plugin with eclipse
- Create a new project
- Import the processing libraries

Session 2: (4hrs)

Prototypical programming with processing

- Creating shapes
- Overview on OpenGL
- Building sample application

Augmented Reality

- Introduction
- Augmented/ Virtual Reality
- Lecture on Google Glass

NyARToolkit

- Overview of tool kit
- Architecture
- Interfacing NyARToolkit library

Session 3: (4hrs)

Graphics and Rendering

- Overlaying 2D & 3D Surfaces
- Color Space Conversions
- Recognizing different patterns

Markers

- Types of markers
- QR code
- Custom markers
- Creating & designing your own markers

Session 4: (4hrs)

Hands-on on overlaying

- Displaying Image on Markers
- 2D Element
- 3D Element
- 3D Element on different markers
- 3D Element with Animation
- Playing Video on markers

How to use metaio SDK?

- Overview of SDK
- Introduction with metaio creator
- How to create apps using metaio
- Overlaying 3D Model

The Training Kit Contents:

CD/DVD containing sample codes, software to be used, study materials, PDF documents etc.

Duration:

We conduct the workshop on 2 consecutive days, each day 6 hours session so in total 12 hours properly divided into theory and hands on sessions.