AI-IoT 2023

IEEE AI-IoT Workshop on Aspects of VR

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Outline

On-screen only

Motivation

High level view and learning path

Foundations

Applications

Goal

Give an understanding about how VR works

More under the hood, than flashy details

Enable some flashy AR/VR scenes

Style

Interactive

Prefer simple development environments over added value and complex development environments

Using A-Frame, Three.js, HTML, and JavaScript

- Focusing on general principles applicable to VR
- Simplest way to learn

On-screen only

In web-browsers

Can still build stuff for headsets

No extra equipment

Less encompassing experience

Definitions

AR – Augmented Reality: adding virtual components to enhance reality

VR – Virtual Reality: emulating a situation that may not exist

Motivation

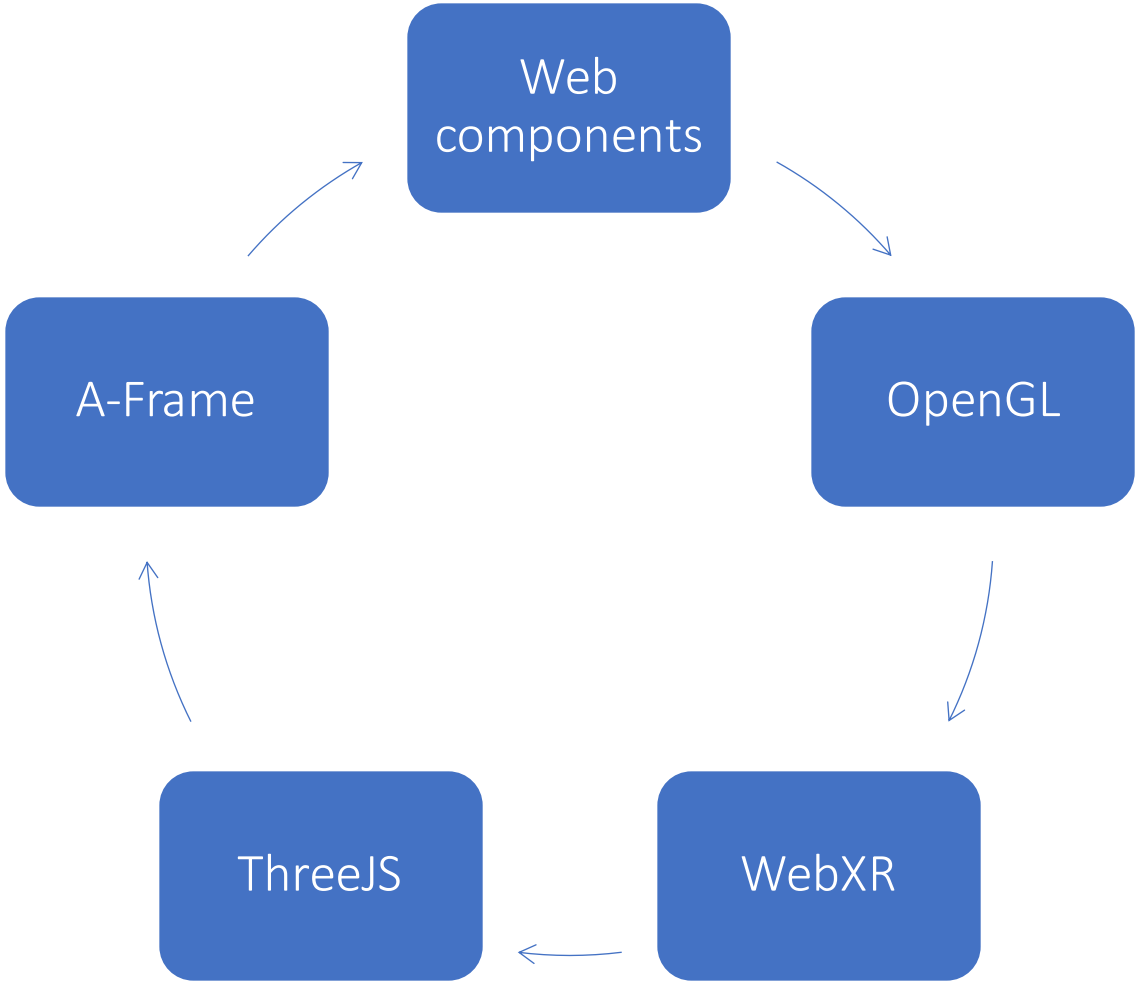
AR

- Industrial enhancements
- Personal enhancements, gaming
- Learning enhancements

VR

- Deeper understanding
- Research and big questions
- AR motivations

High level view and learning path



Style

Hands on

Example coding exercises

Starting: DOM – Document Object Model

HTML – text, CSS style, JavaScript action

Trees with code

Web Components

Shareable

Composition

Object Oriented (OO) design

WebXR

WebMR – Mixed Reality

WebGL – from OpenGL

Rasterization

Three.js

Most popular 3D Graphics using WebGL

A-Frame

Framework for Three.js

So, leverages OpenGL/WebXR

Web component based