

AMIRE

Authoring the impossible?

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ISMAR

Industrial Augmented Reality

Vienna, AUSTRIA

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AMIRE



AS2 ROT /
GRUEN
SCHIEBER
L GNV

www.amire.net

Bilbao Guggenheim Museum



Libraries and Frameworks

ARToolKit (Kato), Studierstube (Schmalstieg)



```
vincent - Microsoft Visual C++ [design] - vincent.cpp
File Edit View Project Build Debug Tools Window Help
Release keybd_event
Start Page | Particles.cpp | LAC_Renderer.cpp | vincent.cpp
[File] [Edit] [Run] [Debug] [Tools] [Window] [Help]
main() {
    push_back(main);
}
// -----
void init()
{
    if (HFrameGrabber)
    {
        printf("No frame grabber available!\n");
        exit(-1);
    }

    ARParam parameters;
    if (!arParamLoad("Data/camera_params.txt", 1, &parameters) < 0)
    {
        printf("Camera parameter load error!\n");
        exit(-1);
    }

    arParamResize(&parameters, HFrameGrabber->getWidth(), HFrameGrabber->getHeight(), &cameraParameters);
    arInitCamera(&cameraParameters);

    //KanjMarkerId = arLoadMat("Data/patt.vincent");
    KanjMarkerId = arLoadPatt("Data/patt.hiro");
    if (KanjMarkerId < 0)
    {
        printf("Marker-pattern load error !\n");
        exit(-1);
    }

    arSetupOpenGL(&cameraParameters, &PrintablyMesh, &PrintablyFm, projectionMatrix);
    MATRIX_EXTEND_ELEMENT(projectionMatrix, 0, 2) = -MATRIX_EXTEND_ELEMENT(projectionMatrix, 0, 2);
    MATRIX_EXTEND_ELEMENT(projectionMatrix, 1, 2) = -MATRIX_EXTEND_ELEMENT(projectionMatrix, 1, 2);
    MATRIX_EXTEND_ELEMENT(projectionMatrix, 2, 2) = -MATRIX_EXTEND_ELEMENT(projectionMatrix, 2, 2);
    MATRIX_EXTEND_ELEMENT(projectionMatrix, 3, 2) = -MATRIX_EXTEND_ELEMENT(projectionMatrix, 3, 2);
}
```

- Designed for programmers to solve AR problems
- Based on third-party libraries
- Pool of useful solutions

Why do we need designers?

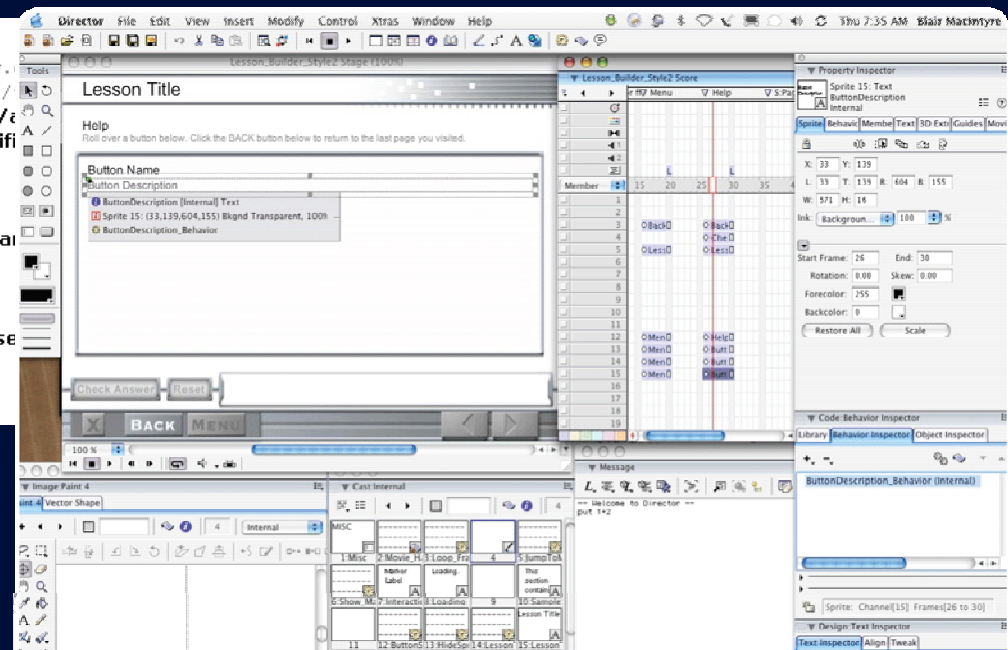
- People expect great applications
- Developers vs designers



Scripting

APRIL (Ledermann), DART (MacIntyre)

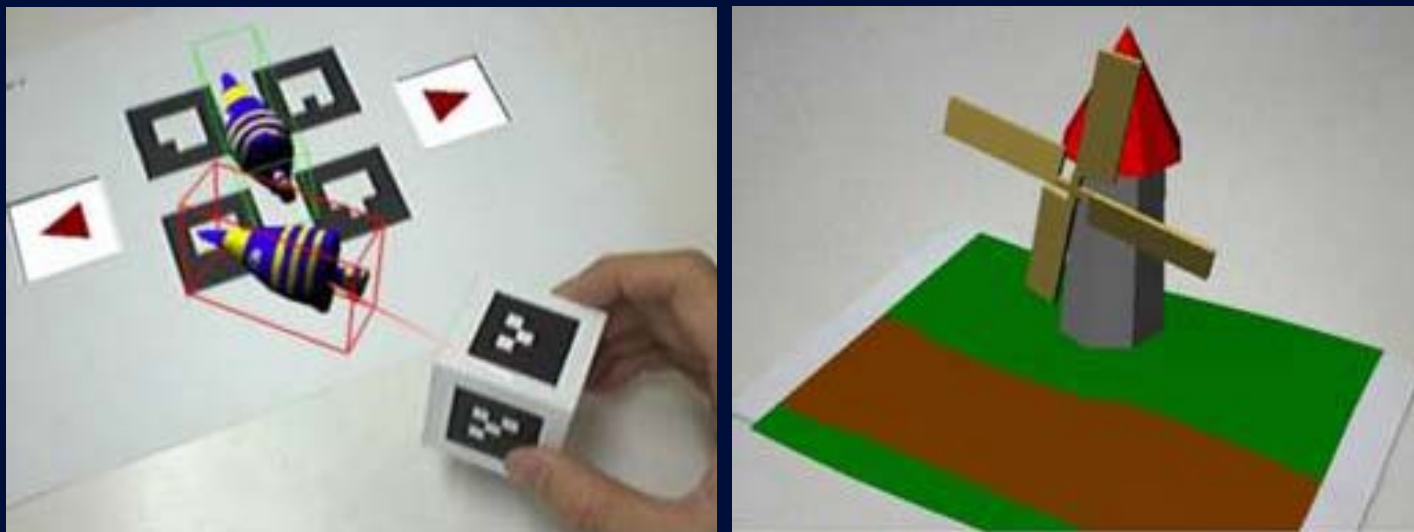
```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- edited with XMLSPY v5 rel. 2 U (http://www.xmlspy.com) -->
<!-- W3C Schema generated by XMLSPY v5 rel. 2 U (http://www.xmlspy.com) -->
- <xs:schema targetNamespace="http://www.studierstube.org/courses"
  elementFormDefault="qualified" attributeFormDefault="unqualified"
  >
- <xs:annotation>
- <xs:documentation>
  Author: Florian Ledermann (
    <a href="mailto:ledermann@ims.tuwien.ac.at">ledermann@ims.tuwien.ac.at
  )
- <p>
  To get an overview, the
  <a href="april-schema.png">graphical schema representation
  is the recommended entry point.
- </p>
- <p>
```



- Designed for graphics experts (media experts) to solve AR problems
- Dart as a plug-in for Macromedia Director

Immersive Authoring

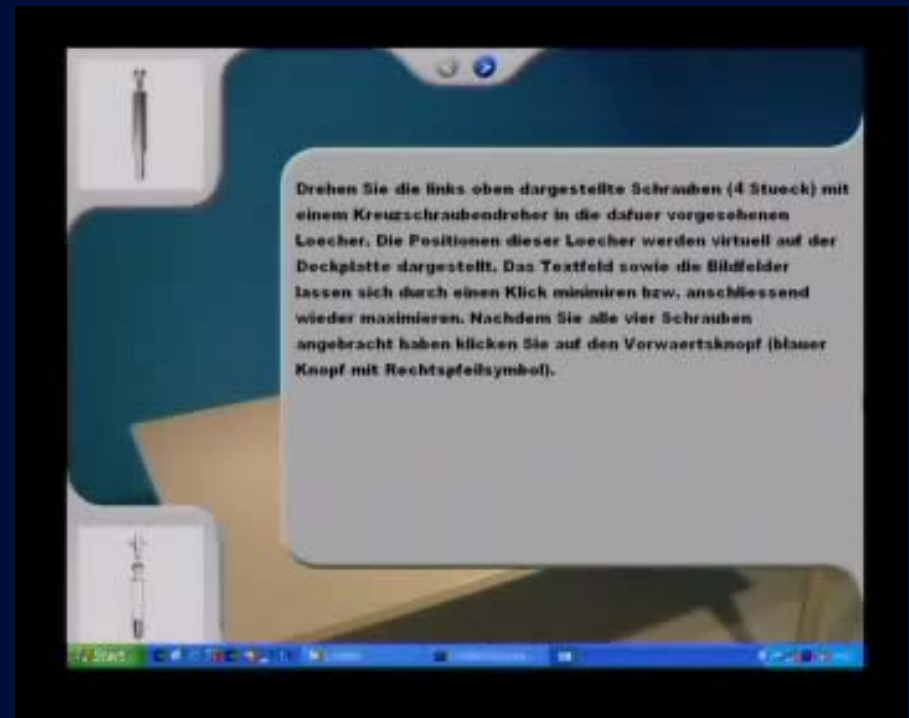
iaTAR (Lee)



- Immersive Authoring for Tangible Augmented Reality Applications
- Tangible User Interface
- Designed for newbies & kids to play with AR

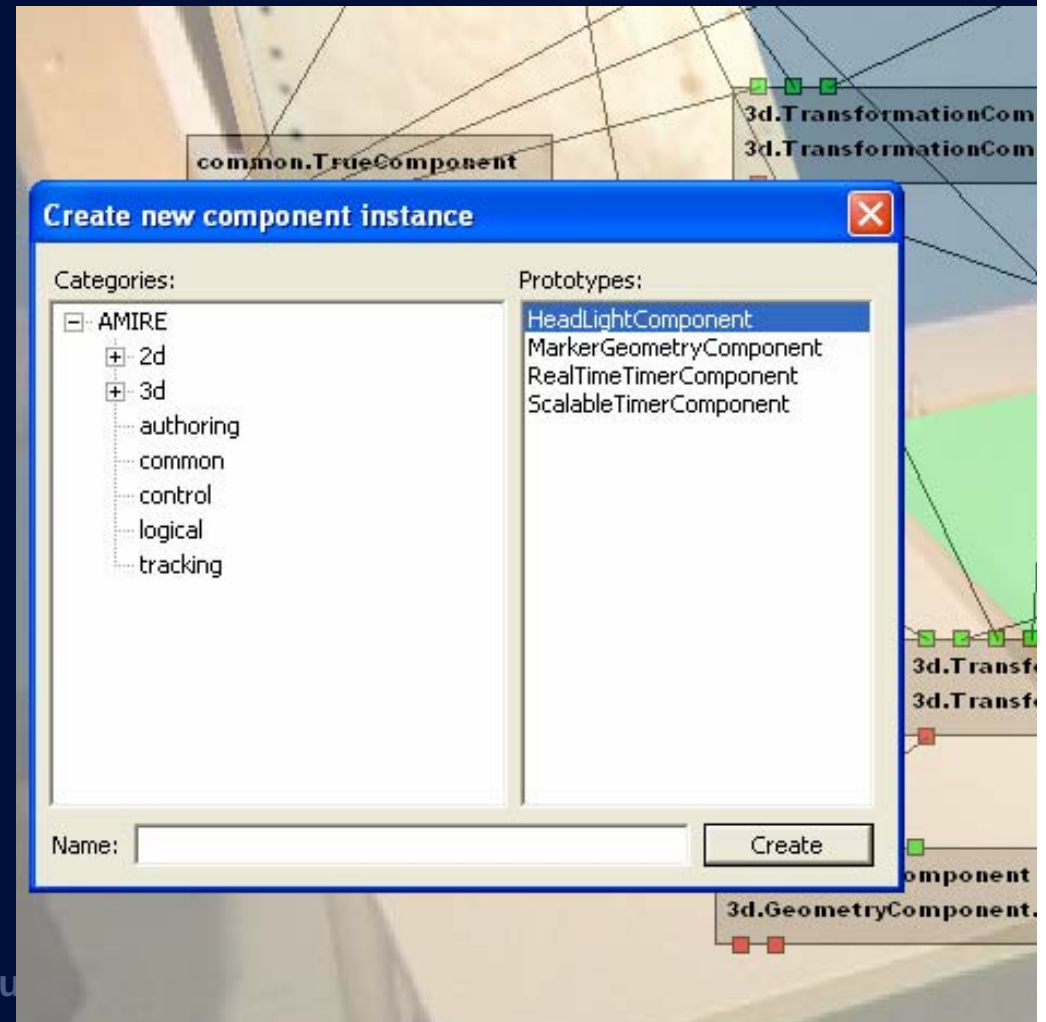
FaiMR

Furniture Assembly Instructor



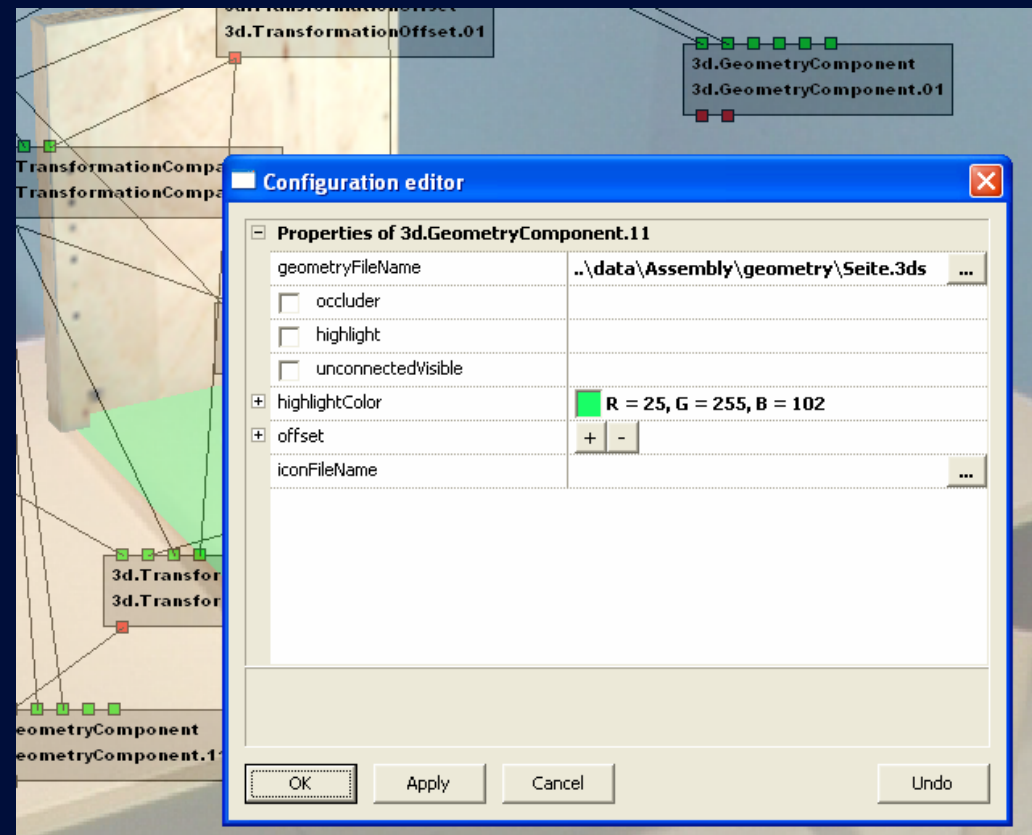
Step one

- Selecting a new component



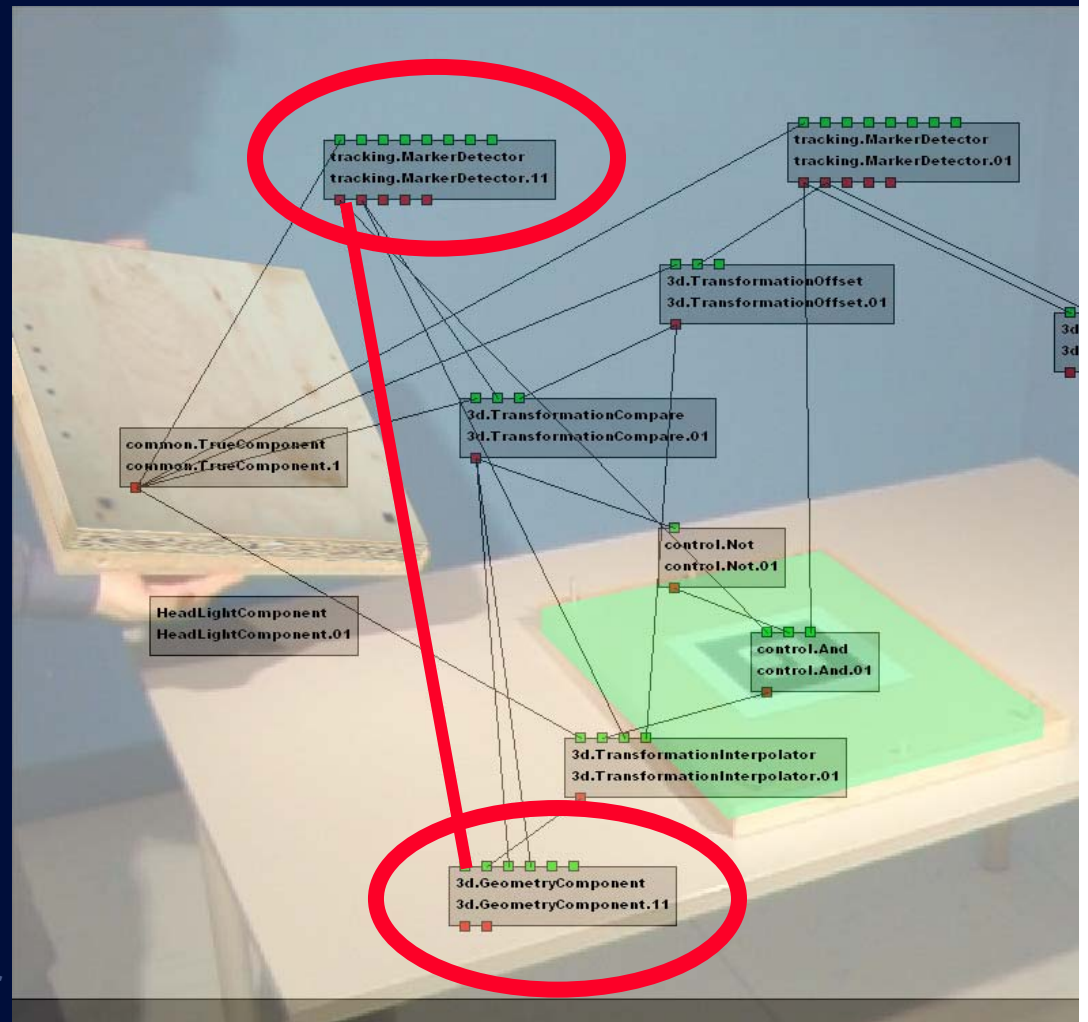
Step two

- Configure the component



Step three

- Connect the components



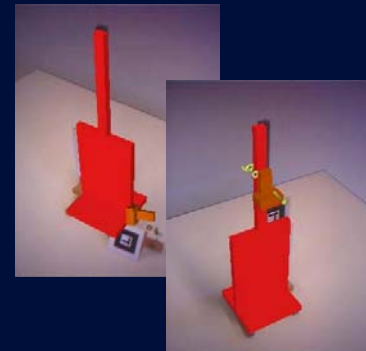
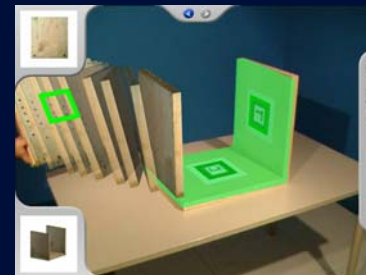
Once authored....

- Scenario is saved in an XML file
- It can be rendered everywhere



How fast can it be done?

- **Programming**
 - Graduate student
 - 4 months
- **Authoring**
 - Graduate student
 - 3 weeks
- **Tweaking**
 - Graduate student
 - 2 hours



Trade-offs

- Can we take the same code and content for different devices?



Trade-offs

- Can we take the same „code“ and content for different devices?



Thanks to

*Juergen Zauner, Erwin Stauder and
Werner Hartmann*



...ISMAR organizers



Questions?

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