2-day Mixed Reality Workshop using Microsoft HoloLens

ArtEngineering welcomes Gwyllim Jahn, Cameron Newnham and Nick van den Berg from Fologram for a 2-day holographic workshop at the Röhm Areal in Schorndorf.
Fologram is a platform that allows artists, architects, builders and craftsmen to intuitively work directly with 3d content within mixed reality environments.
We would like to welcome you to join us for these experimental days and make your own holographic discoveries. Previous knowledge in Rhino and Grasshopper is beneficial but not essential.

When:	**17th and 18th September 2018**
Where:	**zeit.*raum* Seminarzentrum** **Weilerstraße 6, 73614 Schorndorf**
Requirements:	**Own laptop with Rhino 5 or 6 (64bit)**
Participation fee:	**460 € (excl. VAT)**
Language:	**English**
Registration:	**Seats are limited! Please get in contact with us, by 6th July 2018. a.spaenig@art-engineering.net**

Schedule:

Day 1: 9:00 am - 5:30 pm

- Introduction to HoloLens and Fologram
- Setting up a model for mixed reality
- Task: Design a model for mixed reality fabrication

Lunch break

- Mixed reality fabrication of a physical prototype

End of day discussion and BBQ.

Day 2: 9:00 am - 5:00 pm

- Fologram for Grasshopper
- Using markers to analyse and compare physical and digital models
- Fologram Interaction Pack

Lunch break

- Presentation of sample applications using mixed reality
- Time to discuss own projects and ideas

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Fologram.

Further information
www.fologram.com

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Workshop Schedule

Day 1 - Mixed Reality Fabrication

9:30am - Introduction to Mixed Reality on the Hololens

Develop an understanding of how MR has been applied to fabrication and design challenges, how to ensure that you are getting optimal functionality from the HoloLens, how to share what you see on the device with others and first hand experience of placing and interacting with holograms in Rhino.

Fologram Learn, Workshop schedule
Introductory Lecture on Fologram Holographic Design Research
Participant Discussion - share research and practice focus of participants
Brief overview of published research in MR fabrication
Participant Discussion - limitations, opportunities for MR research

10:30 am - Coffee Break (15 mins)

Introduction to the HoloLens

Organise Groups

Tutorial: Interacting with the Hololens
- Fologram Learn
- Gaze
- Gestures

Tutorial & Implementation: Fologram for Rhino overview
- Download
- Installation
- Connecting Hololens
- Using device portal and mixed reality capture
- Synchronizing models
- Setting up a model for mixed reality
- Using the image tracker
- Fologram menu tools.

11:30 am - Coffee Break (15 mins)

Build confidence in using Fologram to assist with complex fabrication tasks. Experience in adjusting devices, workflows and workspaces for optimal fabrication accuracy. Ideas for further design projects and development.

Tutorial and Implementation: Preparing a suitable fabrication environment
- Working with image markers
- Maintaining registration between holographic and physical models

Task: Prototyping with mixed reality fabrication
- Produce a design for fabrication
- Rationalise model for available physical material constraints

1:00 pm - Lunch

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2:00 pm - Fabrication

Tutorial and Implementation: Fabrication setup

- Calibrating headsets
- Send model to the hololens and place using image marker
- Fabrication (3 hrs)

5:30 pm - End of day discussion on challenges and opportunities presented in prototypes.

Day 2 - Interaction design in Grasshopper

Build confidence in using Grasshopper for simple associative modelling and awareness of the value of parametric modelling for design and fabrication. Understanding the advantages of the HoloLens and Fologram for design.

9:00 am - Grasshopper basics

Assign Pairs: Rockstars with Beginners

Tutorial: Grasshopper refresher and introduction

- Grasshopper and Rhino
- Data types and Vector Maths
- Using the data recorder on a point to construct curves
- Constructing and deconstructing meshes
- Sorting and colouring objects by distance
- Filtering items

10:30 am - Coffee Break

Demo: Applications built with Fologram

Tutorial: Introduction to the Fologram components

- Sending meshes to the Hololens and animating models
- Working with 3d Scan data from the HoloLens
- Tracking clicks and building basic modelling applications
- Tracking hands and drawing curves in mixed reality
- Tracking drags to manipulate sliders
- Tracking images and markers for more accurate interactions

1:00 pm - Lunch & time to discuss participant projects

2:00 pm - Project development

Task: Project development with one on one help from workshop leaders

5:00 pm - Presentation of projects and closing comments