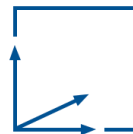


# 360 Tetris:

## Using gamification to collect training data

Md Jamiur Rahman, Patrick Radner, Ahnaf Munir

June 13, 2019



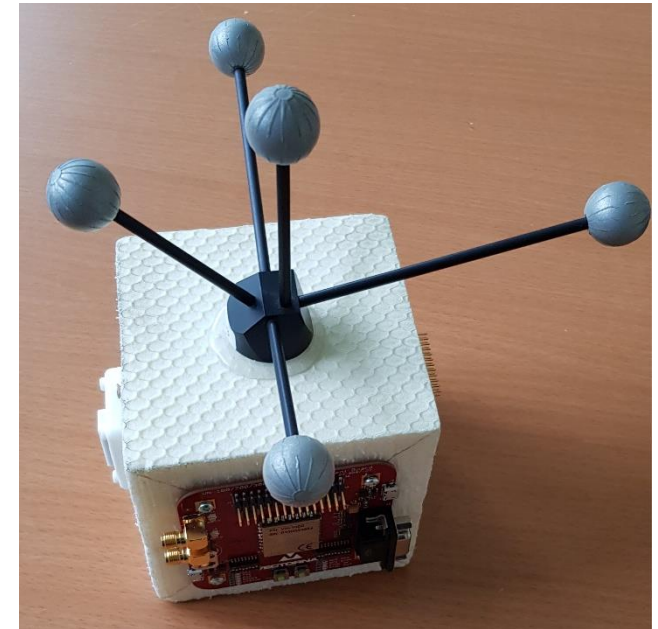
Kickoff: Master Practical: Games Engineering

Director: Prof. Gudrun Klinker (Ph.D.)

Supervisor: Adnane Jadid

# Introduction

- Motion data collection for neural network training
- Outside-In System
- → ART (Advanced Realtime Tracking)
  - Consists of cameras and a target
  - 3 Degree of Translation
  - 3 Degree of Rotation



# Problem Description: Issues

- Data collection is boring 😞
- → Gamification
  - Tetris
  - Created in 1984
  - Very popular
  - Easy to play



# Existing Solutions

- Gamifying Stereo Camera Registration for Augmented Reality
- Games with a Purpose



# Goals of this Practical

- Collect data
- Make the data collection interactive
- Ensure 6DoF
- Engage player for longer period of time (=more data)

# Proposed Work

- Standard Tetris
- Tetris walls surrounding the player
- Virtual Reality
- 3 degree of Rotation
- 3 degree of Translation

# Discussion of Potential Issues

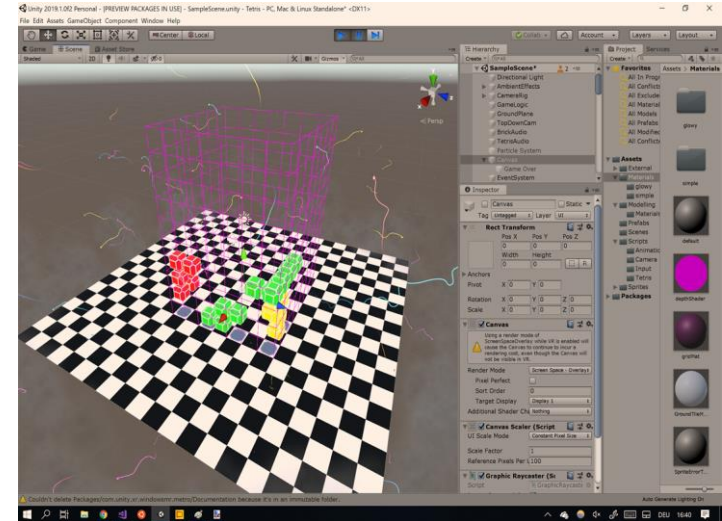
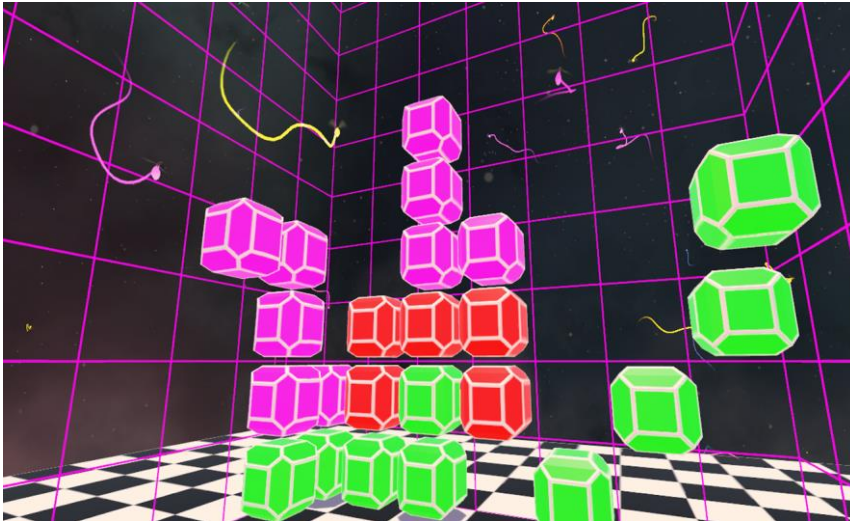
- ART target can be occluded by player
- Limited real-world space
- Wires
- Cybersickness
- Obstacles in real world

# Implementation So Far...

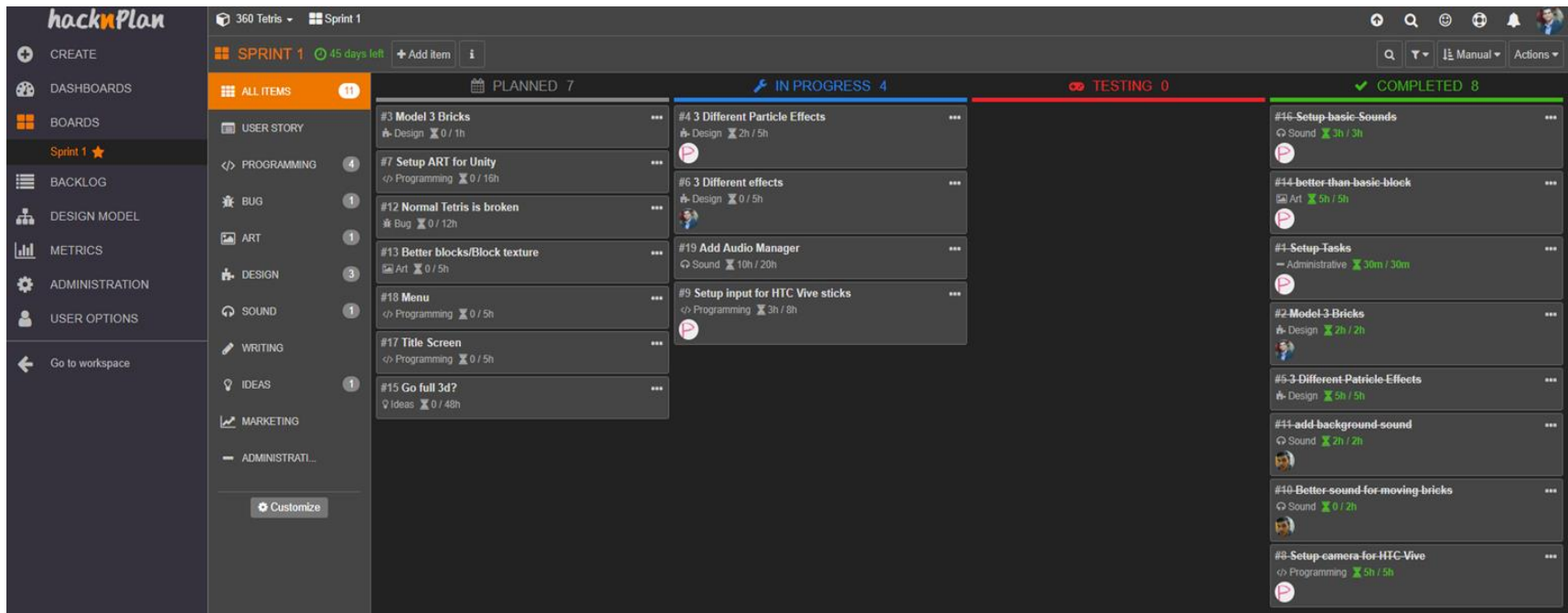
- 3D asset modeling
- Game logic
- Audio
- Basic Visual Effects
- Interaction with keyboard and mouse
- Integration with HTC Vive



# Implementation So Far...




# Project Management



# Our Webpage

TUM Wiki Bereiche Erstellen Suchen  Anmelden

IN-FAR Technische Universität München 

- BA: Turn-based JRPG comb...
- BA: Visualization of Automoti...
- BA: VR - Perception of Time ...
- » BA: wARGaming - Creation a...
- GR Arabisch
- GR Enable 3-6
- MA: A Gamified Drinking Re...
- MA: A location-based seriou...
- MA: ARtemis
- MA: A Serious Game about ...
- MA: Causality in 3D
- MA: Development of a smart...
- MA: Handshake
- MA: HieroQuest – Education...
- MA: Mensch Ärgere Dich Nic...
- MA: Siegestor AR
- MA: Using Photogrammetry ...
- MA: Wireless Streaming of P...
- MA: Wireless Streaming of P...
- MA - Exploration and Classifi...
- **MP: 360-Tetris**
- MP: AR-Escape the Room
- MP: HoloRPG
- MP: Nachts im Museum

Seiten / FAR - Forschungsgruppe Augmented Reality / Abschlussarbeiten/Thesis List

## MP: 360-Tetris

<b>Author:</b>	Md Jamiur Rahman, Patrick Radner, Ahnaf Munir
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<b>Advisor:</b>	Adnane Jadid
<b>Submission Date:</b>	30.09.2019

### Abstract

360-Tetris is the implementation of the classical game of Tetris using virtual reality. The Tetris bricks are spawned in the surrounding area of the player and the player interacts with the bricks using a controller. Like the classical Tetris, the goal of the game is to complete full lines of bricks and clear them. Four walls will surround the user and user has the option to play all four walls or only one.

The objective of this project is to collect the three degree of translational and three degree of rotational movement data from the controller. We decided to collect this data by creating 360-Tetris game as it provides an immersive experience as well as requires sufficient amount of controller movement.

### Protocol

22.05.2019

We will use Hacknplay for our project management stuffs → Patrik will setup this as well as work as a project manager.

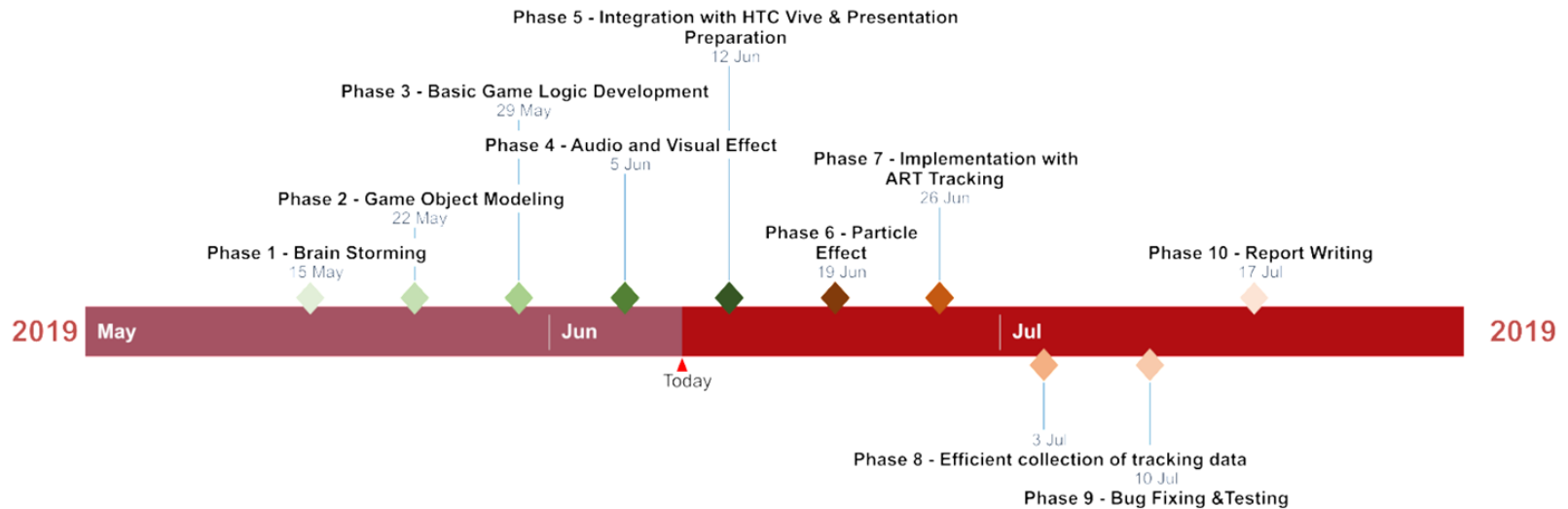
Tasks are follow:

1. Modeling new 3 bricks for the game → Md Jamiur Rahman and Ahnaf Munir
2. Implement different particle effects → Md Jamiur Rahman, Ahnaf Munir and Patrick Radner
3. Implement audio controller in the game → Md Jamiur Rahman
4. Preparation of the Art-Tracking to be used in Unity → Adnane Jadid
5. Putting HTC Vive into operation → Patrick Radner and Md Jamiur Rahman
6. Hands on with HTC Vive Controller with 360-Tetris → Ahnaf Munir, Patrick Radner and Md Jamiur Rahman

# Future Implementation...

- Implementation of different effects
- HTC Vive controller integration
- ART Integration
- Efficient collection of tracking data
- Extend game modes
- Bug Fixing
- Testing

# Time Line



# List of References

1. *Langbein et al. Gamifying Stereo Camera Registration for Augmented Reality. ISMAR, 2018*
2. *Swink, Steve. Game Feel: A Game Designer's Guide to Virtual Sensation. Routledge, 2008.*
3. *Luis von Ahn. Games with a Purpose. IEEE Computer Society Press Los Alamitos 2006.*



# Thank You

