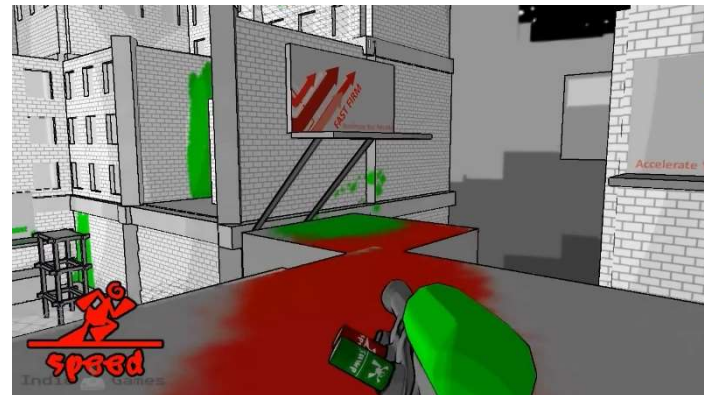


# Spieleentwicklung

Spiele 3D

# Goal of the lecture

- Understand underlying concepts
  - 3d computer graphics (rendering pipeline, transformations...)
  - Game mathematics, physics, mechanics
- Implement **4 game prototypes**
- Work with a game engine (Unity 3D)



# Why 4 prototypes – not 1 big one?

- One big project
  - Lost in details
  - Planning overhead (group management, architecture, ...)
- People work years in dozens of games till first release
  - Here you make 4 ;-)
- More versatile
  - Different game mechanics
  - Different parts of engine used
- We want you to experiment
  - Try out stuff
  - Easier in small projects

# To-do

- Implement 4 small game prototypes
  - Game mechanic and algorithms are important
  - Satisfy given requirements
  - Models or sounds are less important (bonus points)
- Pass interviews for each prototype
  - Includes play-testing and code review



# LVA structure

Block	Topic	Month 1	Month 2	Month 3	Month 4
1	Lecture	<div></div> <div></div> <div></div>	<div></div> <div></div> <div></div>	<div></div> <div></div> <div></div>	<div></div> <div></div> <div></div>
2 (1)	Tutorial	<div></div>	<div></div>	<div></div>	<div></div>
2+home	Work	Game 1	Game 2	Game 3	Game 4
2 (1)	Interviews				

# Theory Lecture – Content

- Game concept and design
- 3D graphics (engine internals)
  - Rendering Pipeline
  - Geometry and transformations
  - Cameras
  - Lighting
  - Texturing
  - Visibility
- Collision Detection
- Physics and animation

# Tutorials

- Series of Unity tutorials given by the tutors
  - Today: introduction to Unity
  - Each tutorial will
    - sketch different game types
    - explain parts of Unity needed for that kind of game

# Working

- In between tutorials
  - **You** will work on **small prototype** games
  - In second part of weekly lecture (coached working)
  - And at **home**
- Workload 5ects = 150h
  - ~60h spent for lectures + tutorials + coached working
  - ~90h homework



# Interviews / Grading

- Before you ask for interview
  - Implement enough prototype **requirements**
  - Prototype should be **playable**
  - **Understand code** and used **theory**
- Ask tutor/myself for interview
- Interview
  - We do **play-testing** of prototype
  - Ask you questions
  - Look at code
- You **receive points**



# If you want to do a big game

- Excellent!
- Possible with/without team
  - Informatikprojekt (5ects), MD projekte (5, 10, 15 ects)
  - Fachbereichsprojekt Spiele (3 or 5 ects)
  - Bachelor thesis (15 ects)
  - Master (xxx ects)

# Unity 3D game engine

- Dominant game engine (45%)
- Can do much without extensive programming
- Many resources online – look them up!
- Tutors will give case study talks

# Unity 3D [unity3d.com/learn/tutorials](https://unity3d.com/learn/tutorials)

## TOPICS



**Interface & Essentials** (22)



**Scripting** (76)



**Graphics** (43)



**Audio** (12)



**User Interface (UI)** (31)



**Navigation** (7)



**Ads & Analytics** (9)



**Multiplayer Networking** (18)



**2D Game Creation** (26)



**Best Practices** (12)



**Physics** (27)



**Animation** (18)



**Mobile & Touch** (6)



**Tips** (19)



**Virtual Reality** (8)

# Unity 3D [unity3d.com/learn/tutorials](https://unity3d.com/learn/tutorials)

## PROJECTS



**Roll-a-ball tutorial (9)**  
New? Start here.



**Space Shooter tutorial (19)**  
Blast some Asteroids!



**Survival Shooter tutorial (12)**  
They mostly come at night..



**Tanks tutorial (8)**  
2-players, 1 keyboard, Tank vs Tank.



**2D Roguelike tutorial (14)**  
Procedural level Survive-em-up!



**Procedural Cave Generation tutorial (9)**  
Let's get spelunking.



**2D UFO Tutorial (9)**  
New? Want to make 2D games? Start here.



**Let's Try Assignments (12)**  
Learn to create single game mechanics.

# Resources

- Github ([goo.gl/pFsdX2](http://goo.gl/pFsdX2))
  - Slides
- [goo.gl/PUvaAG](http://goo.gl/PUvaAG)
  - Commented links on games and computer graphics
- All Game Relevant Events (and more)
  - Google calendar [goo.gl/SySLwF](http://goo.gl/SySLwF)
- Moodle
  - Tutorial downloads
  - Forum for questions