

PORTFOLIO

Advanced Programming for AAA Video Games

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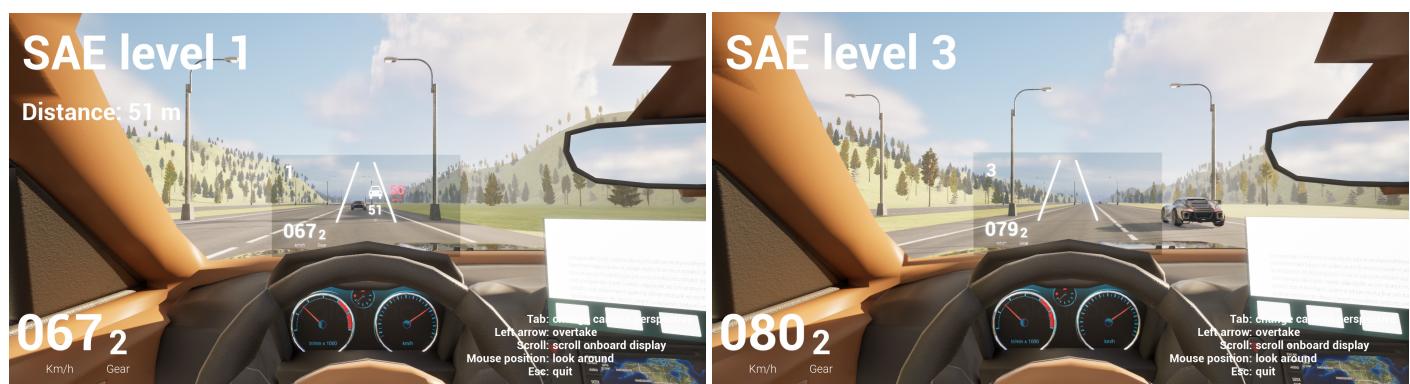
✉️ An der Betteleiche 19, 70569 Stuttgart, Germany
🐾 Portfolio code: RTwySx



DEMONSTRATOR AUTONOMOUS DRIVING MODES

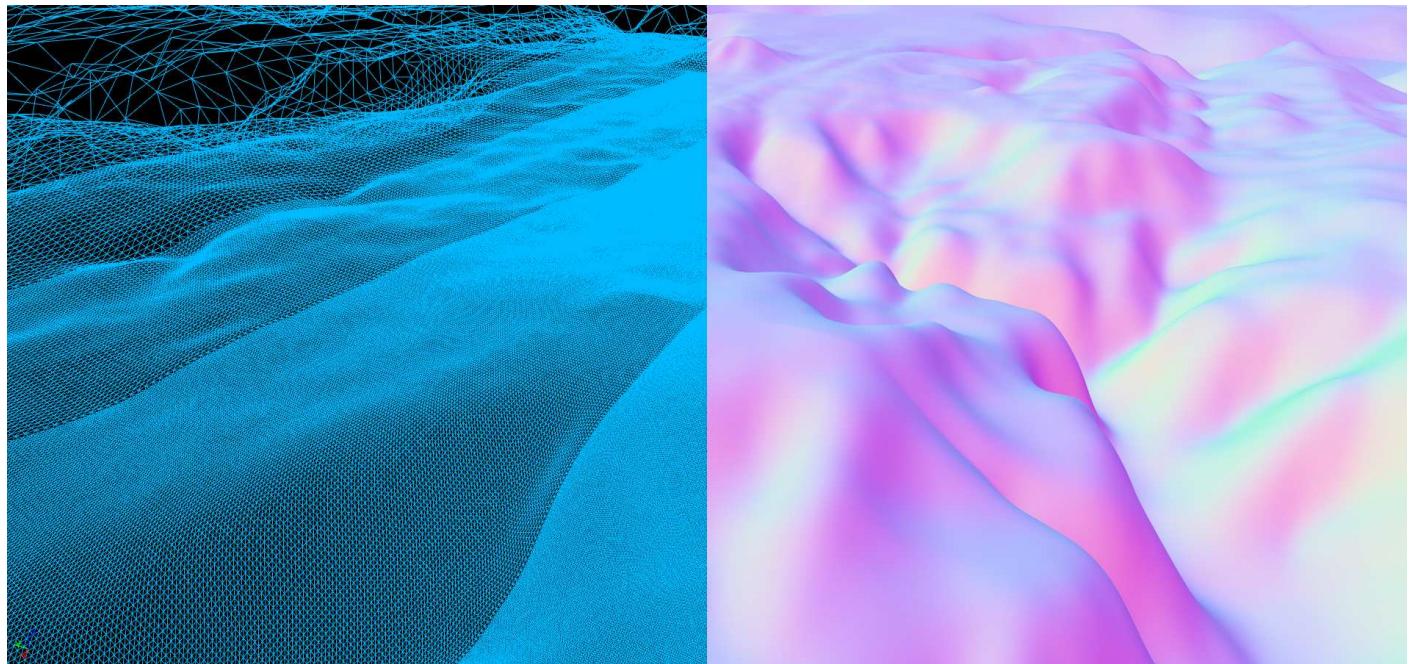
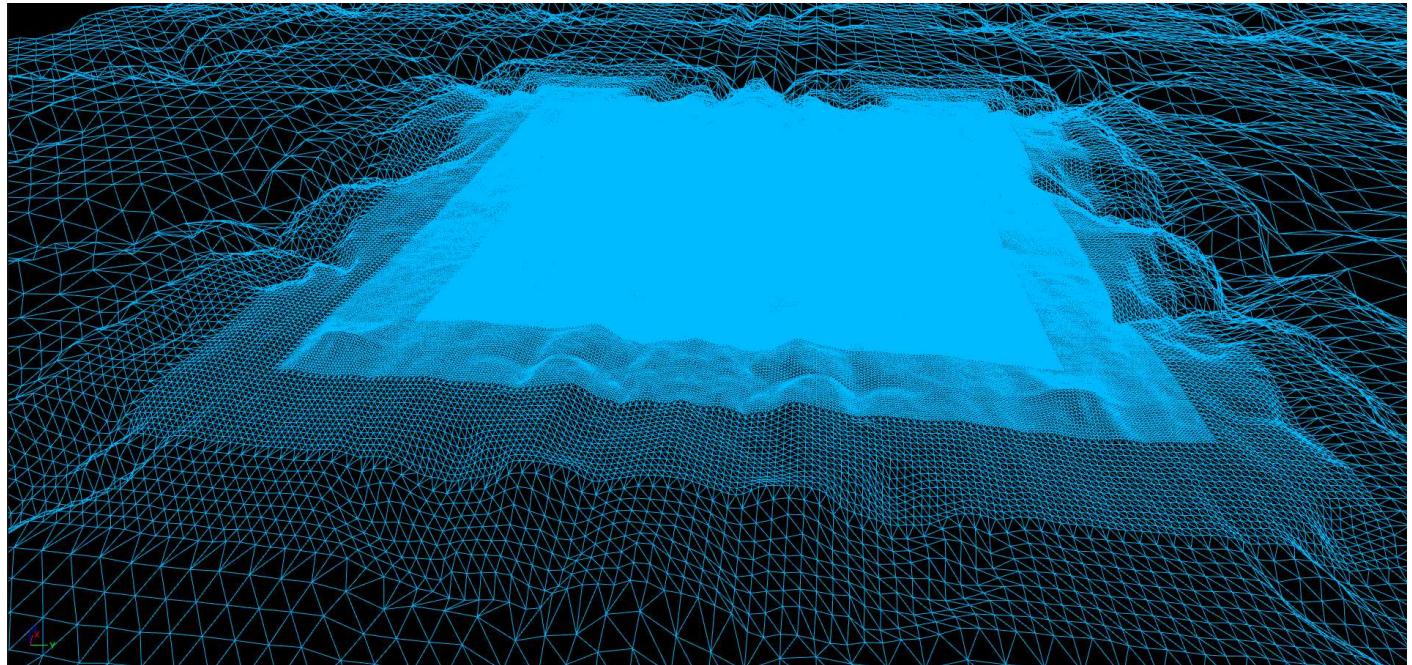
As a demonstrator for different autonomous driving levels, this project was developed from the ground up by a colleague and me over the course of two days. It includes a spline following steering controller for the vehicles, the level itself, the heads up display and some steering controls.

A video of the demonstrator drive can be found in the provided portfolio folder.



DYNAMIC TERRAIN

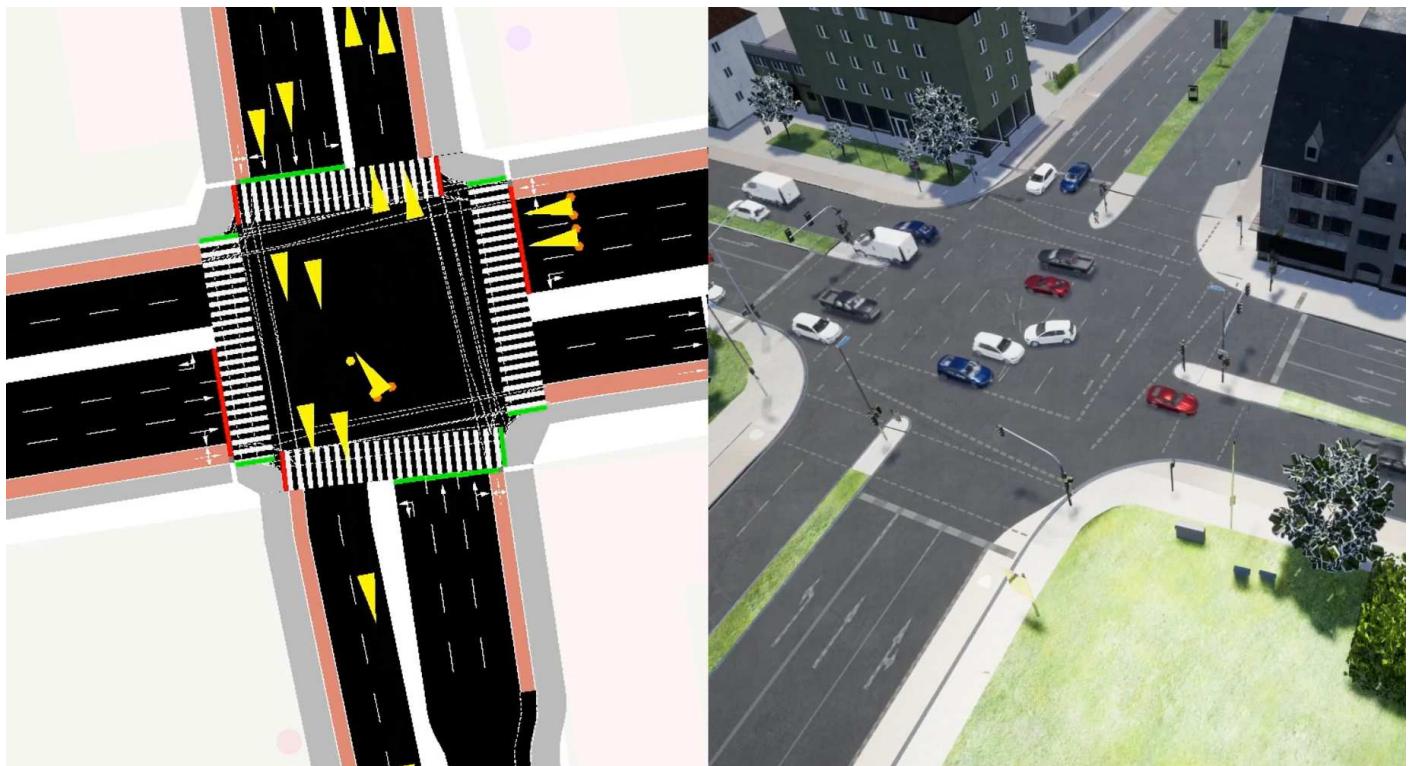
This Terrain generator is currently being developed by me for a research project. It generates a landscape mesh based on height maps in real time. If the player moves it updates accordingly. Features include a chunk system, automatic LOD generation, multiplayer support and full parallelization.



REAL TIME VISUALIZATION OF SUMO SIMULATIONS

UE4 and 5 Plugin to visualize a SUMO (<https://github.com/eclipse-sumo/sumo?tab=readme-ov-file>) traffic simulation inside the Unreal Engine. Includes full parallelization, the cars with SUMO movement, orientation and scale, traffic lights and a ego vehicle which is able to interfere with the SUMO simulation.

The software is featured as part of the SaveNow research project (<https://savenow.de/de/results/>, Video 4, Minute 2:00). The video is also uploaded inside the provided portfolio folder.

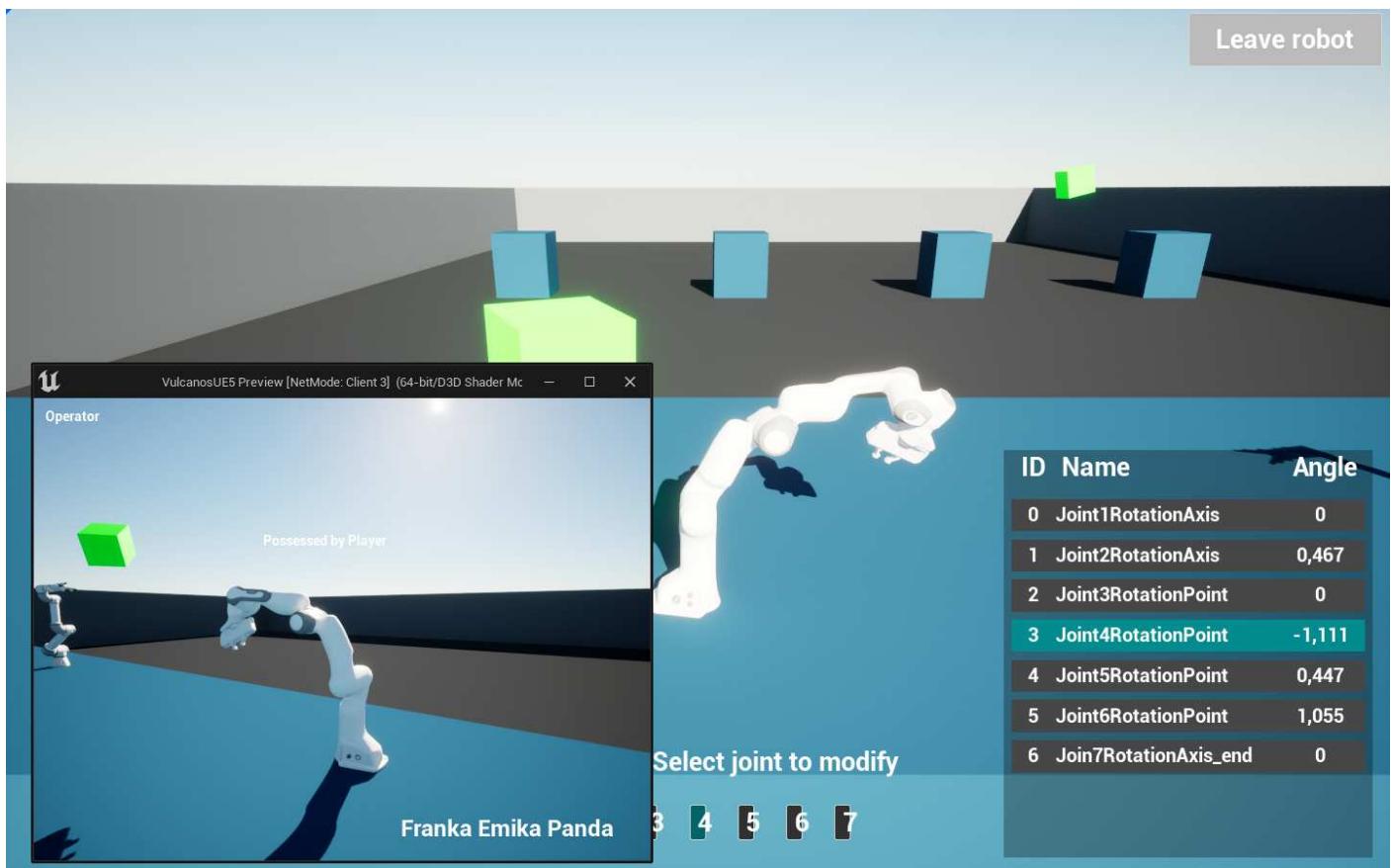
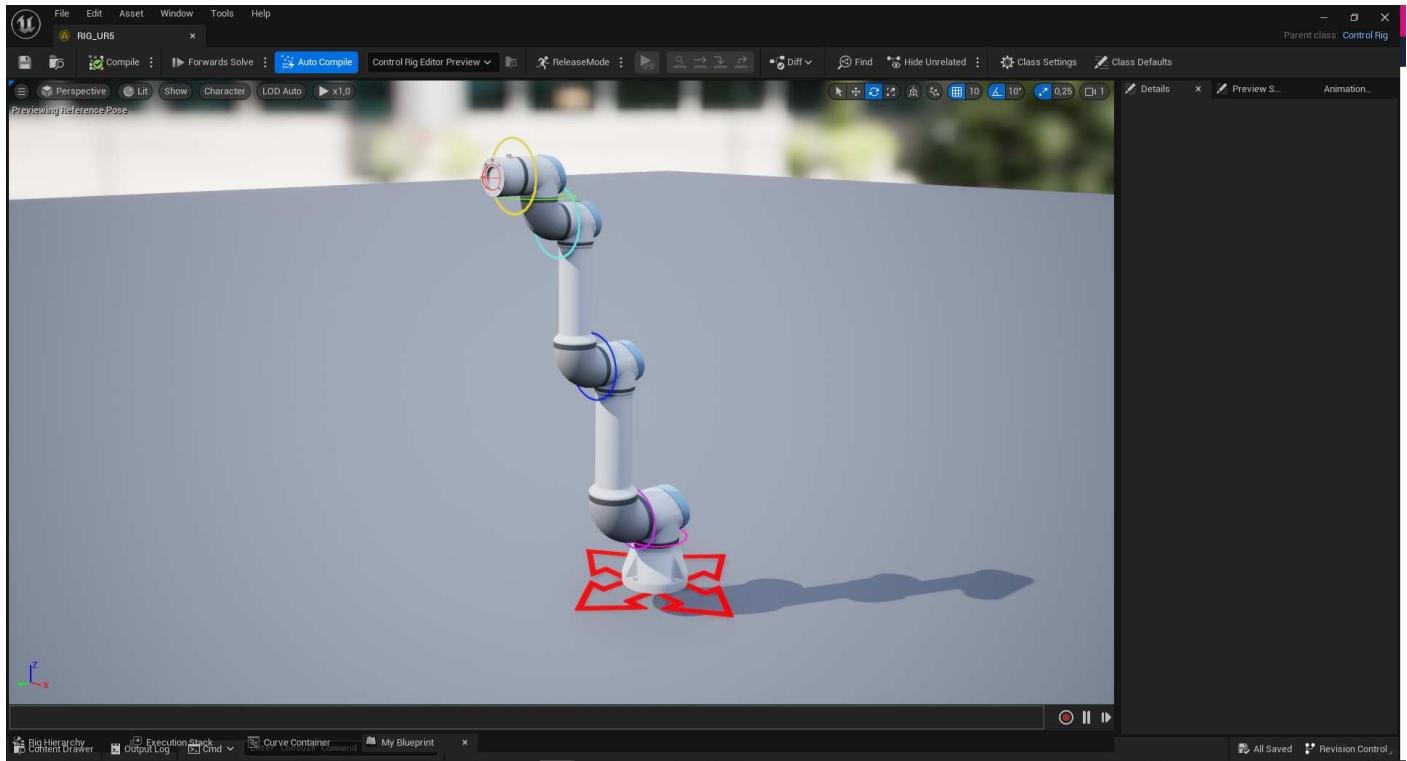


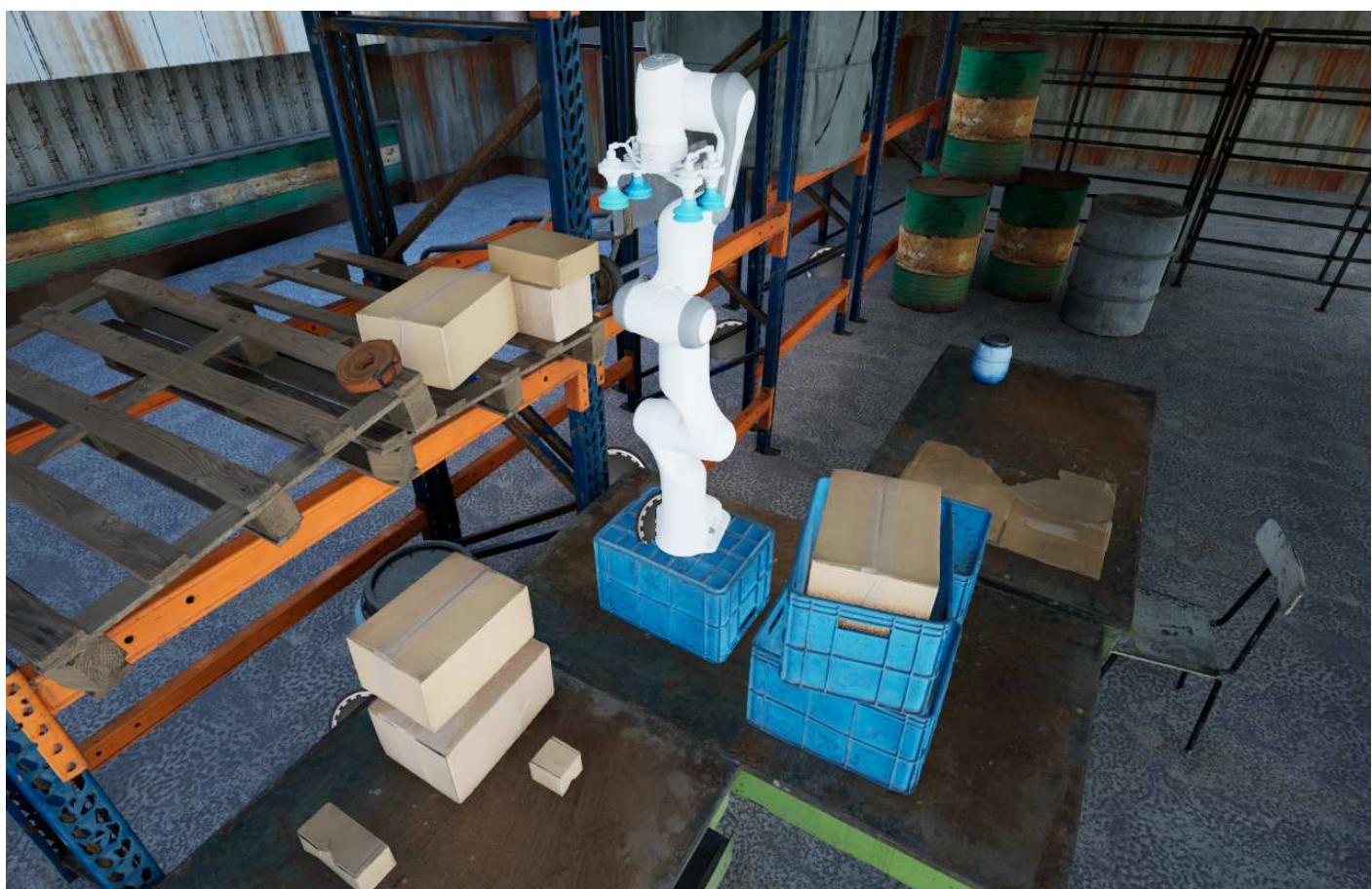
TRONIS

In addition, I work on various parts of the TWT software Tronis, again using the Unreal Engine 4 and 5. Screenshots and videos can be viewed here: <https://twt-innovation.de/produkte/>, <https://www.youtube.com/watch?v=FdTtqtq9Ag4>.

VULCANOS VIRTUAL ROBOT LABORATORY

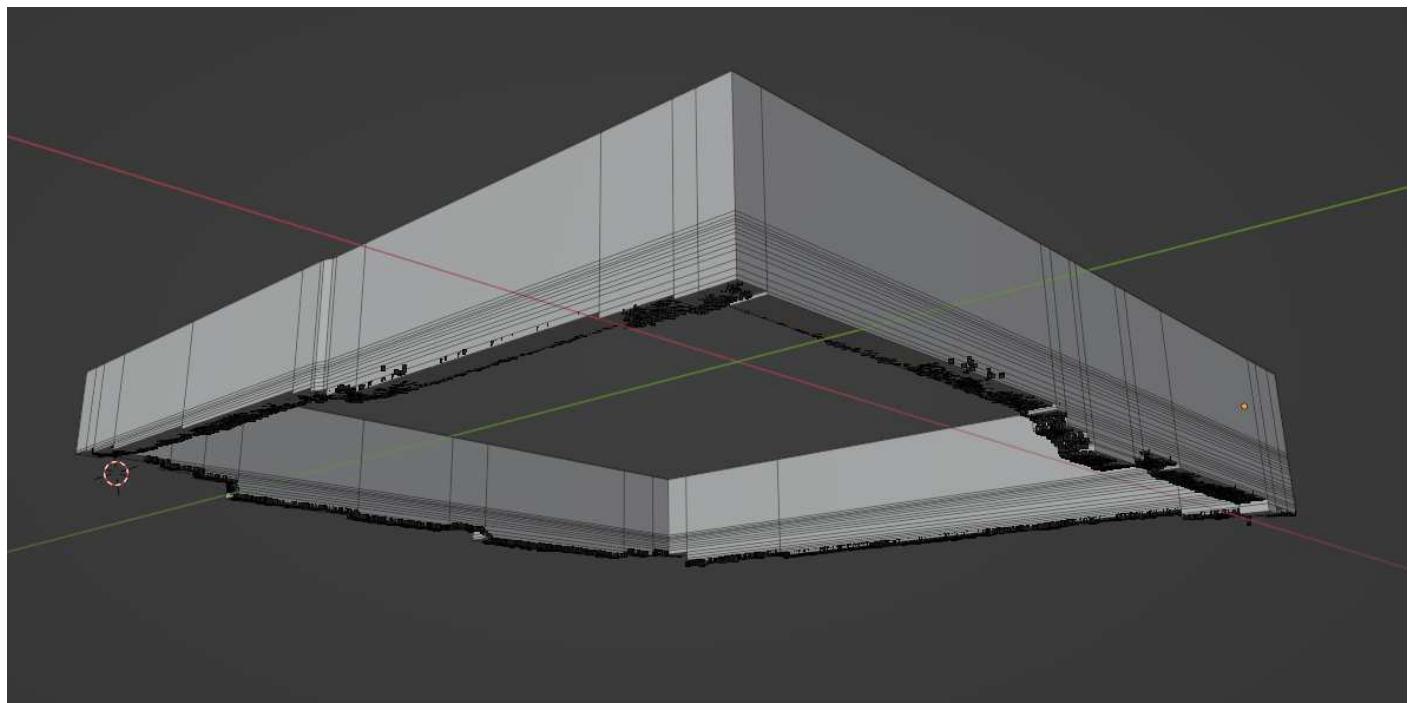
Shared virtual laboratory for testing motion sequences of robot arms. Includes full multiplayer support, control rigs and a bidirectional ROS connection for testing ROS programs. Main menu was developed by a working student, robot meshes were downloaded.

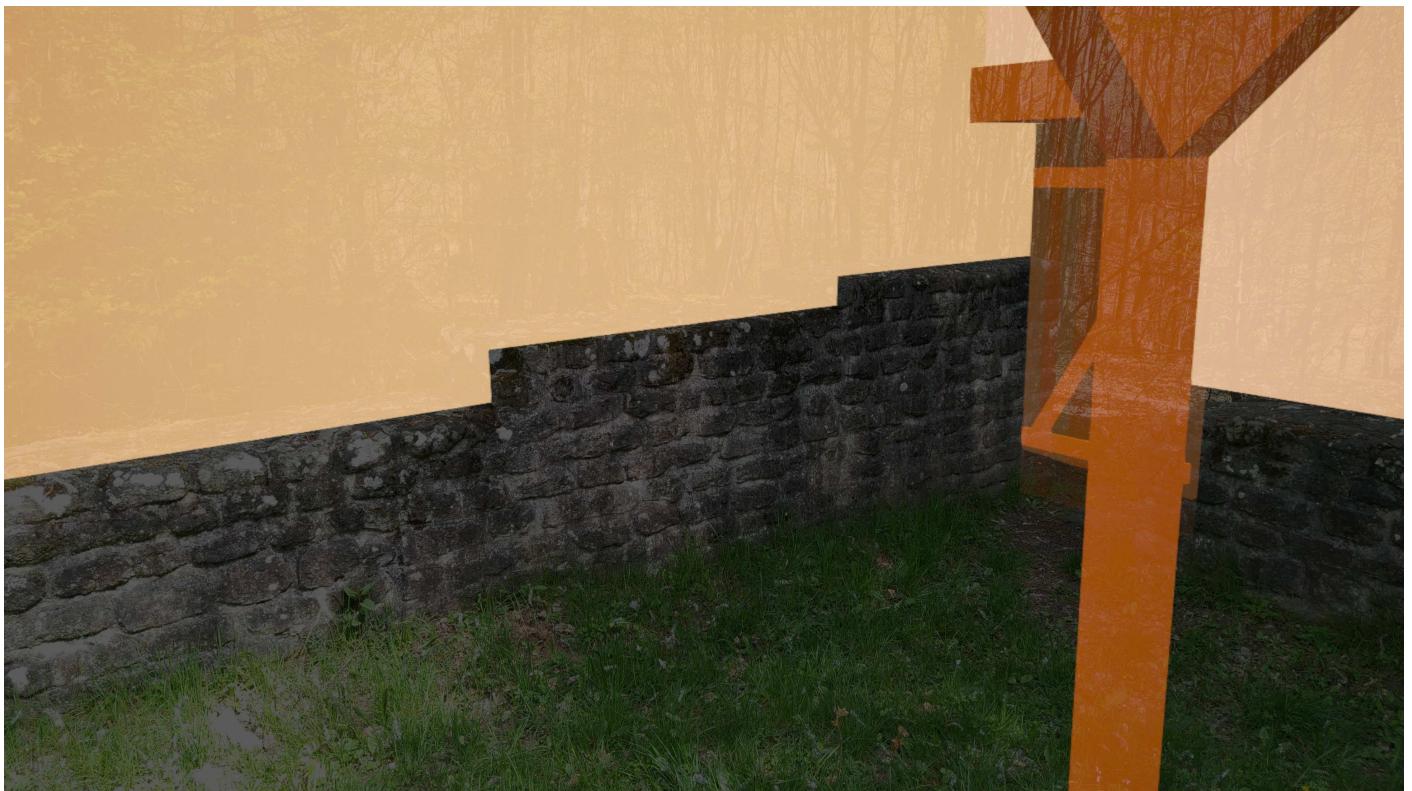




VIRTUAL COMPLETION OF A RUIN WITH THE HELP OF AUGMENTED REALITY

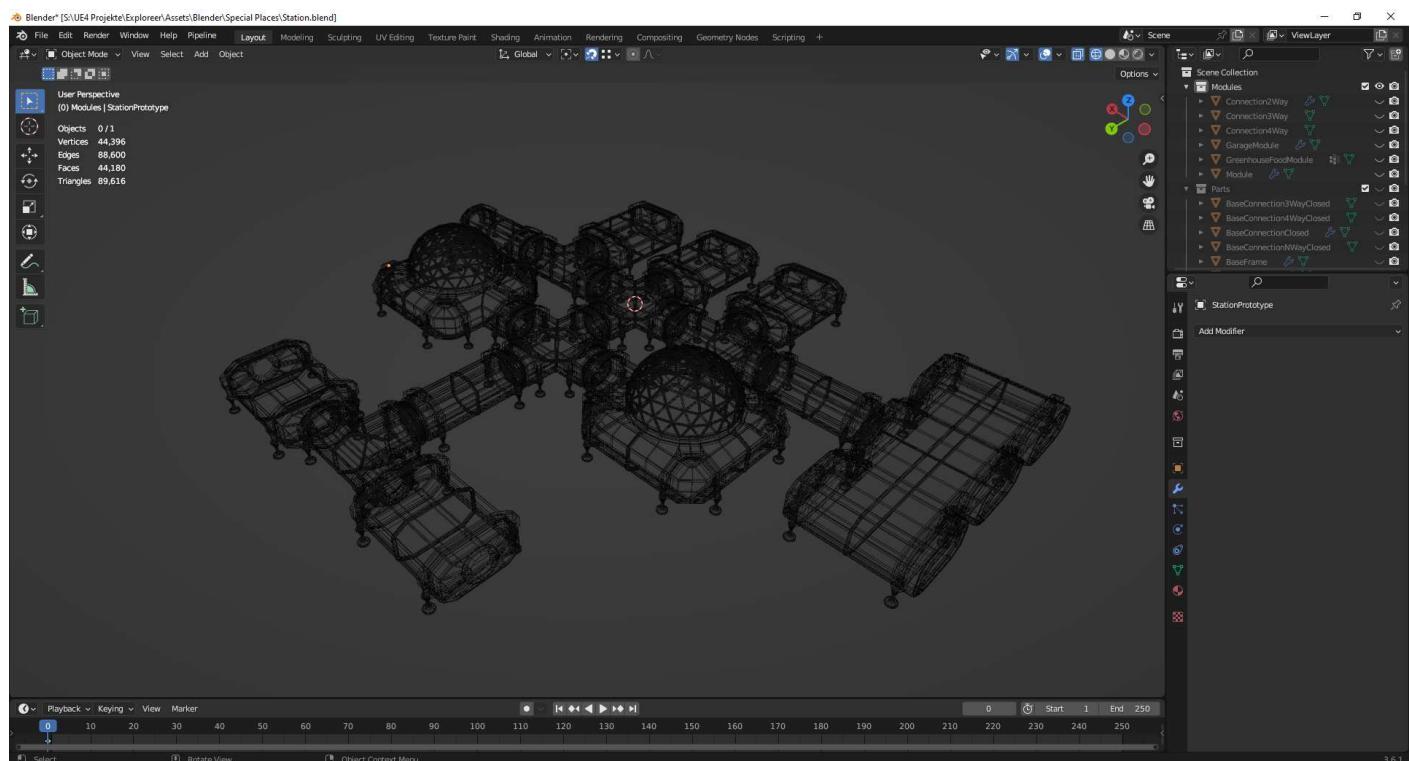
Solo project as part of my bachelor thesis. Uses the Unreal Engine 5 and OpenXR to display the virtual content on a HoloLens 2. In order to be able to model the virtual content, a laser scanner was used to capture the real environment in great detail.

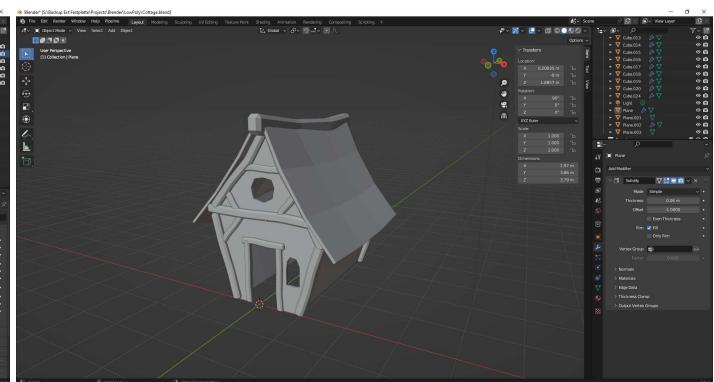
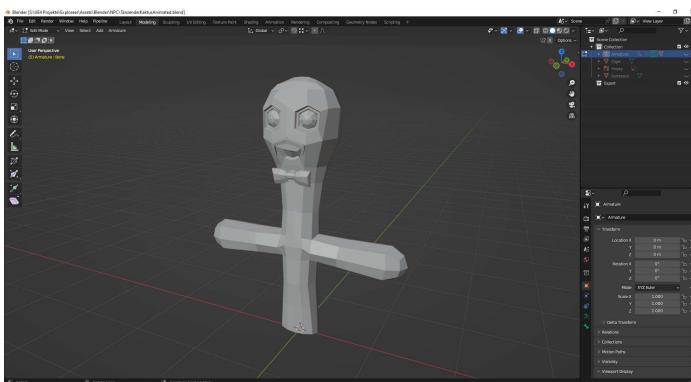
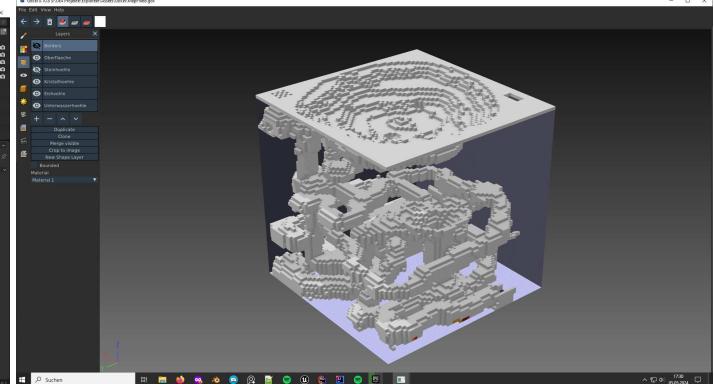
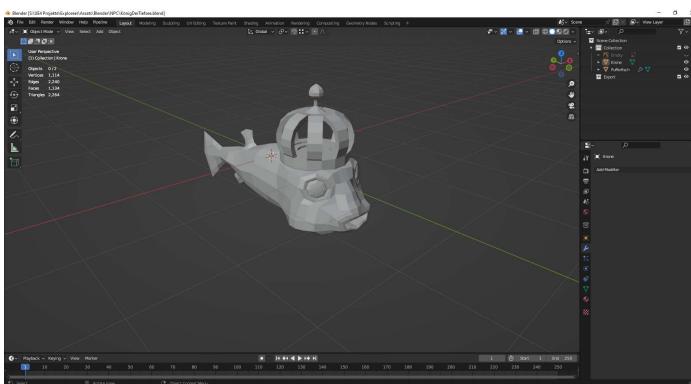
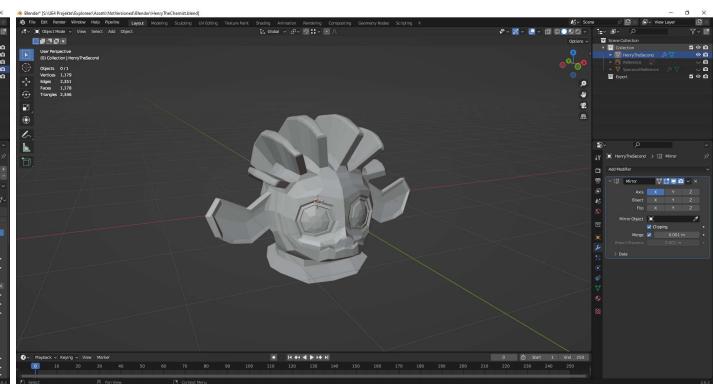
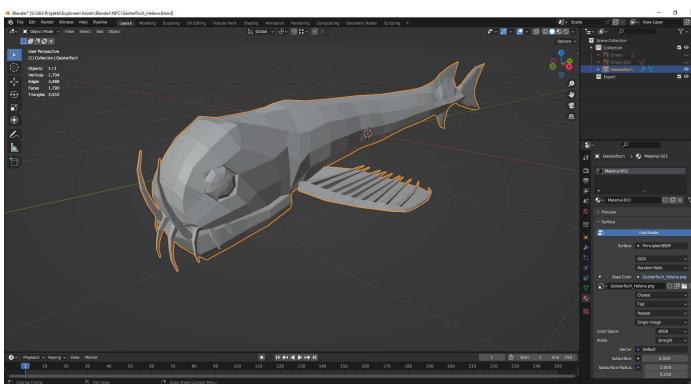




LOW POLY ACTION ADVENTURE

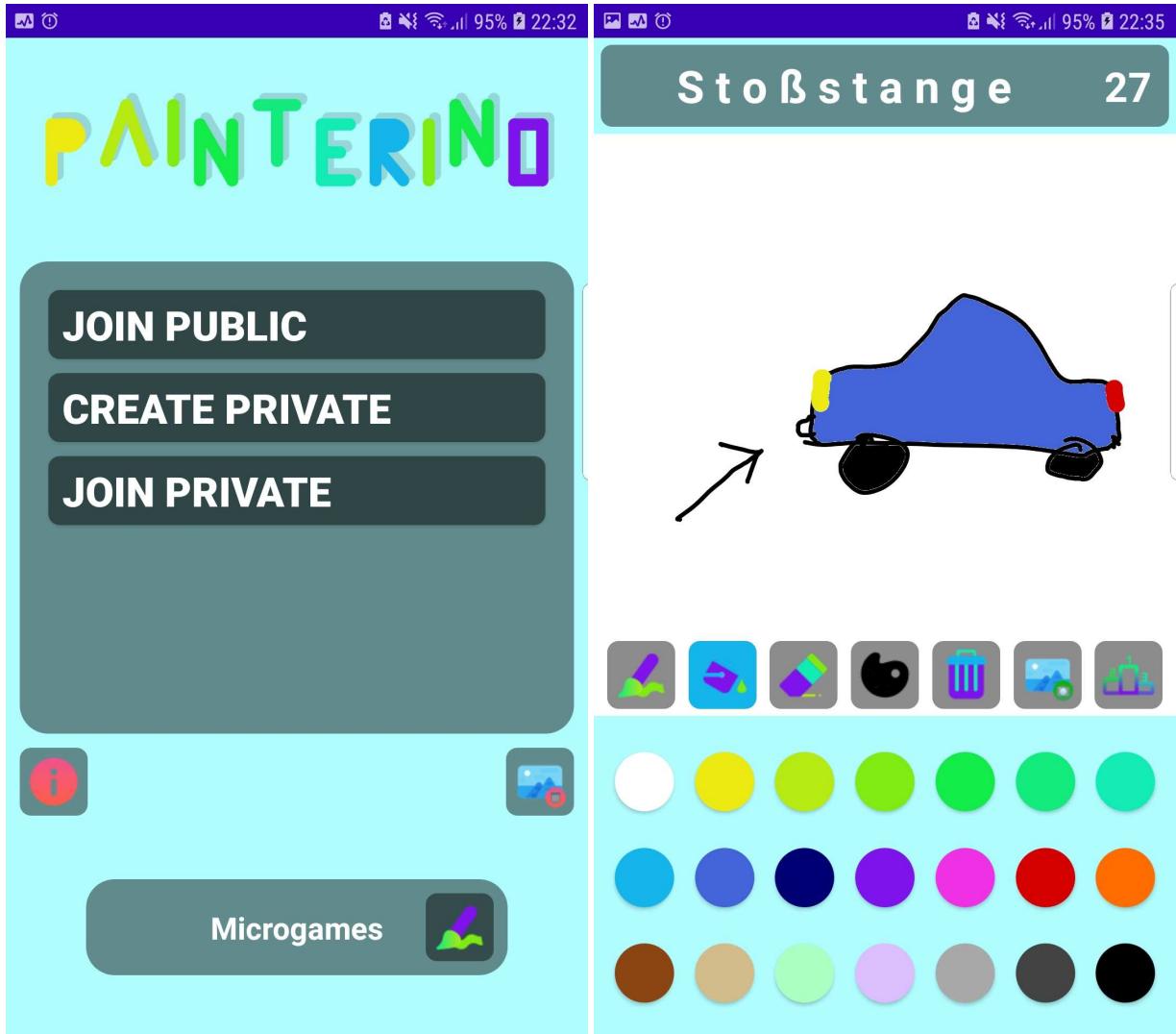
Personal game project. Focused in the early stages mainly on extensive project planning. Developed as an low poly 3D puzzle adventure. Included a lot of terrain modeling inside the Unreal Engine as well as the creation of various blender models. Due to time and money paused after 6 months.





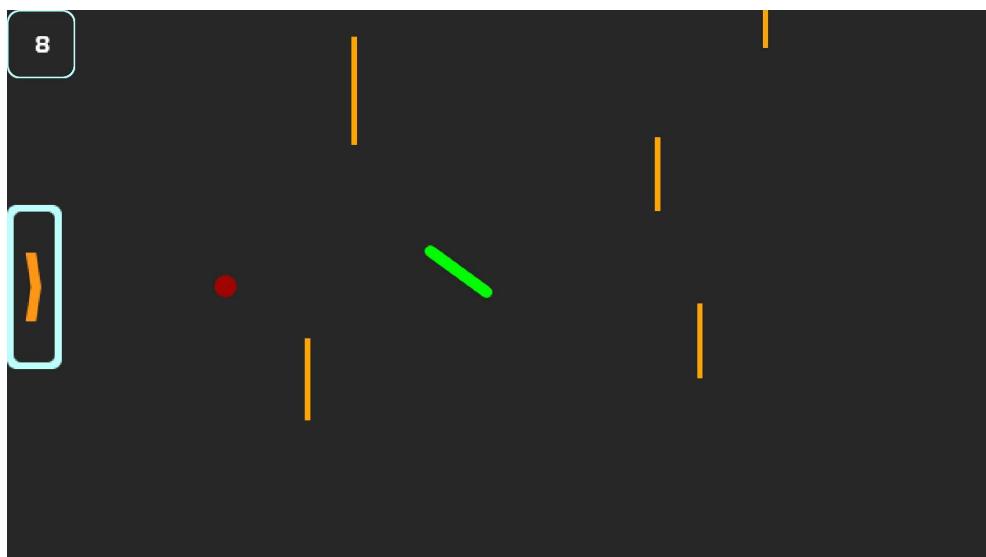
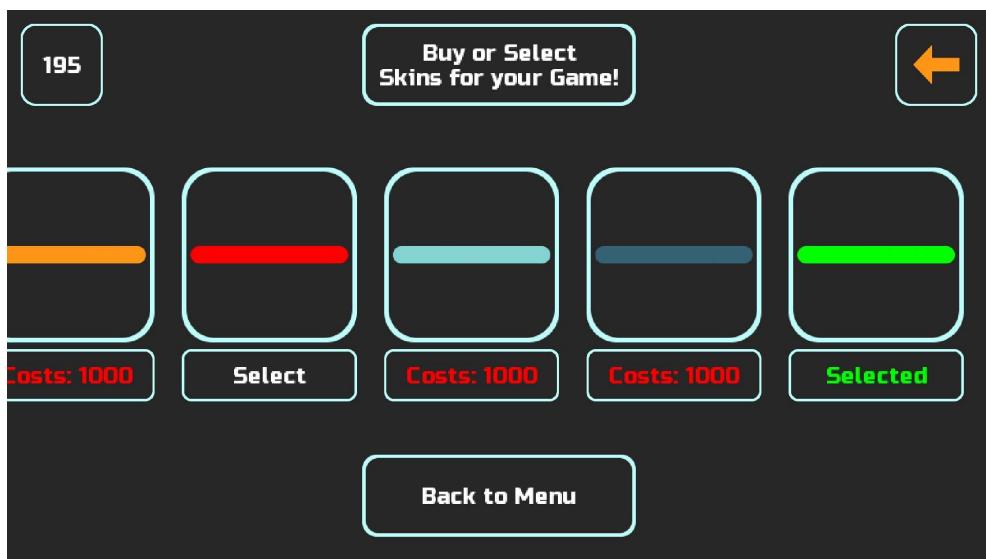
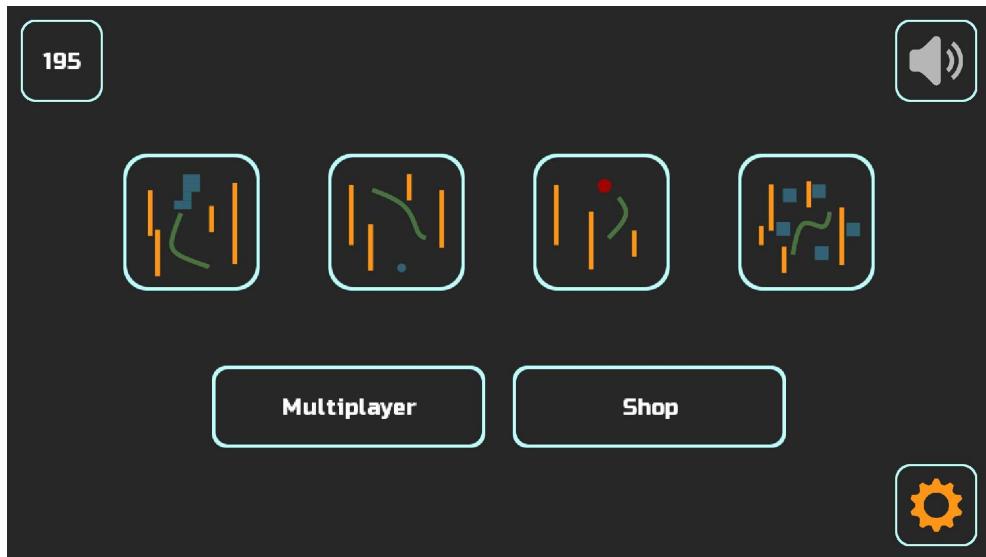
MULTIPLAYER PAINTING GAME FOR ANDROID

Second released game by me. Includes full multiplayer support. Similar to Scribbli (<https://skribbl.io/>), but developed specifically for the android platform.



MINI GAME FOR ANDROID

A small mini game for android where the player needs to avoid lines coming from various directions. First game which was fully developed and released by me.



PORTFOLIO FILES

The files provided for this portfolio can be accessed by using the following link and password:

- Link: https://cloud.nordlocker.com/share/receiver/locker/unlock#FYtJQpqN-KaHfKmNBHZW_5tnCQvtgta6YSHzajnnHlc
- Code: **RTwySx**