

Tobias Brandner

Interested in real-time interactive systems and machine learning.

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Education

Master of Science in Computer Science - Specialization: Artificial Intelligence

- **Grade:** 1.5 - **Julius-Maximilian-University** - Wuerzburg, Germany - *April 2021 - September 2024*

Bachelor of Science in Games Engineering

- **Grade:** 1.8 - **Julius-Maximilian University** - Wuerzburg, Germany - *October 2017 - September 2021*
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Projects

Real-Time Rendering Super Resolution with Unreal Engine 5
([GitHub](#))

Technologies: Python, Pytorch, Unreal Engine 5

- Developed a neural method to upsample from 1080p to 4k in under 16.6 ms (60 fps) while increasing image quality (anti-aliasing).
- Created a 550 GB dataset of stylized environments with a third-person character, including 1080p aliased and 4k anti-aliased frames.

Boss'n Run ([Itchio](#))

Technologies: Unreal Engine 5, C++, Python

- Developed a framework for investigating movement in 3D jump'n'run games.
 - Implemented and abstracted multiple movement mechanics.
 - Visualized movement behavior in 3D plots.
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Experience

Research Assistant

Julius-Maximilian-University - Wuerzburg, Germany *November 2021 – August 2023*

- Worked on an open-source project called Via-VR, an online editor for creating VR applications to support medical treatment.
- Developed with Unity, wrote small modules in C# to expose functionality from Unity to the editor.

Tutor

Julius-Maximilian-University - Wuerzburg, Germany *August 2020 – August 2023*

- Tutored a course on game engine development with C++ and OpenGL.
- Supported new students in programming preliminary courses.

Internship Software Developer

Gentle Troll Entertainment GmbH - Wuerzburg, Germany *March 2021 – June 2021*

- Worked on a serious game teaching children management in sport.
- Developed gameplay behavior in Unity using C#.

Publications

- **Brandner Tobias**, Marc Mußmann, and Sebastian von Mammen. “Analysis and Generation of Flow in 3D Jump’n’Run Games.” 2024 IEEE Conference on Games (CoG). IEEE, 2024. ([PDF](#))
- Babu, S. K., **Brandner, T.**, Truman, S., & von Mammen, S. (2023). Investigating Crowdsourced Help Facilities for Enhancing User Guidance. In IMET (pp. 27-30). ([PDF](#))

Skills

- **Languages:** Python, C++, C#, Java, Rust
- **Frameworks/Libraries:** Pytorch, Matplotlib, Pandas
- **Game Engines:** Unreal, Unity, Godot
- **Tools:** Git, CMake, Blender