

Application for ML Architect Engineer (Munich ID 47288)

Dear ARR team,

Neural networks are already being used to support real-time rendering. For example, they increase the resolution of rendered frames in real-time or generate completely new frames in between rendered frames. Your work [neural texture block compression](#) reduces the storage size required for high quality textures. But there is so much more to explore. [Game'N'Gen](#) simulates the classic game DOOM by embedding the game state and generating frames based solely on this, completely replacing the traditional rendering approach. Therefore, I believe that neural rendering will continue to play a key role in the gaming industry.

During my bachelor studies, I was curious about the art of game development. I learned the basics of real-time interactive systems and rendering while developing my own small game engine using C++, OpenGL and CMake, among other things. In my Master's degree, I combined this interest with machine learning as I investigated super resolution in real-time rendering for my thesis. I collected my own dataset within Unreal Engine 5 to design and implement a network architecture with Python/Pytorch. Comparing my architecture with other networks on VRAM usage, inference speed and image quality metrics (PSNR, SSIM, LPIPS). I work methodically as I was able to analyze and visualize movement behavior in 3D jump'n'run games and publish my work at this year's Conference of Games in Milan.

While I was lucky to have capable people around me for interesting projects, I still lack experience. I would like to expand my knowledge of rendering techniques, especially neural rendering, to support game development.

I think your position [ML Architect Engineer](#) is an excellent opportunity for me to develop further. However, I feel that my experience is not sufficient for a senior role. Would you consider hiring me for a junior position?

Best,

Tobias Brandner