Nicolas Nebel

NICKWNEBEL@GMAIL.COM | GITHUB.COM/NICKWN

3D Software Developer: PDG, *SideFX* June 2023 – Now

- Supported character animation toolset development. Optimized rig graph manipulation and evaluation, implemented rig constraint nodes.
- Improved Houdini's integration with render farms and other studio pipelines. Developed geometry and pipline task-related nodes.

AR/VR Software Engineer Intern, *Adobe* Summer 2021

- Ported an adaptive height map tessellation technique by Adobe Research to a real time graphics engine used by Adobe's software; developed a novel improvement with LOD clustering and better adaptive properties.

UE Programmer Intern, *Epic Games* Summer 2019, 2020

- Created a plugin for visualizing/manipulating the 3D motion trails of objects tracked by Sequencer. Released in UE5: bit.ly/3vhDGqj.
- Renovated curve editor tools (write-up: git.io/JUju6), created primitive spline shape creation tools. Shown here: youtu.be/j5OYgBputvs.
  - On curve editor tools (1:26:25): "This is awesome for camera work if you're trying to fine tune the camera, especially if you get into shakes, like camera shakes."
  - On spline generation tools (1:52:10): "It's awesome … you can basically do a series of very complex curves and stuff, very quickly."

EDUCATION

B.S./M.S. Computer Science, *UC San Diego* Class of '22, '23

•. Researched adaptive meshing under Prof. Albert Chern. Wrote a paper: *Adaptive Surface Meshes from Harmonic Maps* (arxiv.org/abs/2306.10115).

PROJECTS

- Wrote a Rust/wgpu game engine including deferred renderer, scene graph, and more for CSE 125, a senior project class (bit.ly/3WUC6GO).
- Wrote a Vulkan graphics engine for CSE 169 featuring skeletal animation, cloth simulation, and an SPH fluid simulation (git.io/JUjzn).
- Modeled and rendered an alpine sunset with procedural clouds for CSE 272. Won class competition (bit.ly/3wiTviN).
- Wrote an OpenGL 3D medical scan renderer for UCSD's Immersive Visualiation Lab. Supports transfer functions and volumetric, diffuse, and clearcoat materials; uses voxel cone tracing (git.io/JtInK).
- Implemented *A Practical and Controllable Hair and Fur Model for Production Path Tracing* (git.io/JPoCx) & *Adaptive Polynomial Rendering* (git.io/JPoW8).
- Wrote a few articles on intrinsic/coordinate-free geometry processing: geodesics (bit.ly/48haja2) and Delaunay triangulation (bit.ly/3H4HWj2).

Skills: C++, Python, Rust, GLSL, Vulkan, wgpu, OpenGL, Blender, Houdini