Yingjie Guo

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Education

University of Pennsylvania — Philadelphia, PA
Master of Science in Engineering in Computer Graphics and Game Technology — *Jan. 2021 – Dec. 2022*
Courses:Interactive Computer Graphics, Physically Based Rendering, Computer Animation — *GPA:4.0/4.0*

University of Pennsylvania — Philadelphia, PA
Master of Science in Engineering in Material Science and Engineering — *Aug. 2019 – Dec. 2022*
Courses:Energy Storage and Technology, Fabrication of Nanomaterials, Optical Metamaterials — *GPA:3.8/4.0*

Beihang University — Beijing, China
Bachelor of Science in Chemistry — *Aug. 2015 – June. 2019*
Courses:Analytical Chemistry, Inorganic Chemistry, Electrochemistry, Organic Chemistry — *GPA:3.73/4.0*

Experience

Graduate Teaching Assistant — Sep. 2021 – Now
University of Pennsylvania — *Philadelphia, PA*

- Mentored 50+ students for Python and Java homework
- Holding recitation for 30+ student weekly
- Developed two quiz question sets and practices

Legal Assistant — Jul. 2020 – Sep. 2020
Beijing H&W Law Firm — *Chengdu, China*

- Participated in a class-action lawsuit regarding a dispute over a housing lease contract to document the claims of the litigants and calculate the rental income and arrears of all litigants
- Participated in a biding for a government project to prepare the demonstration documents

Projects

Mini MineCraft | *C++, GLSL, OpenGL, Qt, Git* | Project Link — Mar. 2021 – May. 2021

- An interactive 3D world exploration and alteration program in the style of the popular computer game Minecraft
- Optimize the game's rendering process with less computation
- Apply static/animated textures to the in-game building blocks
- Improve the fluid simulation of the rivers generated in-game

PathTracer | *C++, Qt* | Project Link — Jan. 2021 – Apr. 2021

- A photorealistic rendering engine with Monte-Carlo path tracing integrator and photon mapping integrator
- Applied the multiple importance sampling method to reduce variance in the direct lighting estimation
- Applied the Russian Roulette termination method to reduce render time in the indirect lighting estimation
- Applied the KD-tree data structure to store meshes and photon information for photon mapping
- Applied multiple BSDFs to represent materials' property in renders

MircoMaya | *C++, OpenGL, Qt* | Project Link — Feb. 2021 – Mar. 2021

- A mesh editor mimicking the functions in the style of Autodesk Maya or Blender
- Implemented loading and displaying the mesh OBJ and skeleton JSON files function
- Support modifying the mesh from single vertex to skeleton

ShaderFun | *C++, GLSL, OpenGL, Qt* | Project Link — Jan. 2021 – Feb. 2021

- Implemented multiple shaders with GLSL shading language to approach various artistic effects

Technical Skills

Languages: C/C++, GLSL, Java, Python
Developer Tools: Git, Qt Creator, PyCharm, IntelliJ, Eclipse, Google Cloud Platform
API: OpenGL