Yingjie Guo

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Education

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

University of Pennsylvania — Philadelphia, PA
Master of Science in Engineering in Material Science and Engineering — *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 — *June 2019*
Courses: Analytical Chemistry, Inorganic Chemistry, Electrochemistry, Organic Chemistry — *GPA:3.7/4.0*

Experience

Graduate Teaching Assistant — Aug. 2021 – Present
University of Pennsylvania — *Philadelphia, PA*
- Mentor 50+ students for Python and Java homework in CIT590: Programming Languages and Techniques
- Hold recitation for 30+ student weekly to solve their quiz and coding exercise questions
- Develop two quiz question sets and code exercises

Legal Assistant — Jul. 2019 – Sep. 2019
Beijing W&H Law Firm — *Chengdu, China*
- Communicated with 50+ litigants for a class-action lawsuit over a housing lease contract
- Documented and calculated the rental receivables for the housing contract dispute
- Prepared bid document for a municipal bond issuing and won the bidding

Projects

PhysicsInvader | *C#, Unity3D, Adobe PhotoShop, Adobe Premiere* — Sep. 2021 – Oct. 2021
- A space shooter game mimicking the gameplay of Space Invader
- Applied rigid body components to the ships and missiles so that they can bounce around
- Added random awards when enemies get destroyed to buff the player
- Designed a boss scene as addition to the original game scene as a bonus challenge

Mini MineCraft | *C++, GLSL, OpenGL, Qt, Git* — Mar. 2021 – May. 2021
- An interactive 3D world exploration and alteration program in the style of the popular computer game Minecraft
- Worked as a team of three to deal with issues from art, engine, and multi-treading respectives
- Optimized the game's rendering process to pass less data to GPU for computation
- Bound static/animated and opaque/transparent textures to the building blocks in game with 2D samplers
- Improved the fluid simulation with modification to the vertex shaders of the rivers blocks generated in game

PathTracer | *C++, Qt* — 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
- Adapted the Russian Roulette termination method to reduce render time in the indirect lighting estimation
- Utilized the KD-tree data structure to store meshes and photon information for photon mapping
- Focused on multiple BSDFs to represent materials' property in renders

MircoMaya | *C++, OpenGL, Qt* — 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
- Supported modifying the mesh from single vertex to skeleton

Technical Skills

Languages: C/C++, C#, GLSL, Java, Python
Developer Tools: Git, Qt Creator, PyCharm, Unity3D, Eclipse, Google Cloud Platform
API: OpenGL