# Song Shi

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Song Shi  GreenyMustard

## Education

**Dartmouth College** *Sep 2024 – Jul 2026*
*Master of Computer Science with Concentration in Digital Arts*
**Tongji University** *Sep 2017 – Jul 2021*
*Bachelor of Engineer in Environmental Design*

## Experience

**Research and Teaching Assistant** *Hanover, NH*
*Dartmouth College* *Jan 2025 – Present*

- TA for COSC 70 Foundations of Applied Computer Science; COSC 29.06 Digital Tangible User Interfaces; COSC 87/287 Rendering Algorithms.
- Research Assistant in Dartmouth VCL lab, focusing on light transport, stochastic geometry representation. Doing research on improving the efficiency of sampling light transport on Gaussian Process Implicit Surfaces.

**Guest Lecturer** *Shanghai, China*
*University of Shanghai for Science and Technology* *Mar 2024 – Apr 2024*

- Taught a first-year graduate course to 25+ students on Intelligent Product–Service Systems (PSS), covering Game Engine (Unity) development, 3D modeling, animation, and object-oriented programming.

**Software Engineer** *Shanghai, China*
*Bigmind* *Aug 2022 – Jan 2024*

- Implemented *SimuloCity, a simulation platform based on Unity for automotive industry* with high-fidelity weather effects and GIS-based environments for automotive clients, expanding extreme conditions scenario coverage with 120fps for 2K on RTX 3080.

**Software Engineer** *Shenzhen, China*
*FuturePlus* *Aug 2021 – Jul 2022*

- Designed and implemented a 3D procedural generation algorithm in Blender and Unreal Engine, accelerating urban planning workflows by 90% across two development sites totaling over 3,900 hectares.

## Projects

**PBR Path Tracing Renderer with unbiased Monte Carlo integration**

- Integrated multiple advanced techniques, including volume path tracing with importance sampling in the framework of null scattering, environmental map with importance sampling, etc, on Darts, the Dartmouth College CS287 path tracing framework. (C++)
- Won first prize in Dartmouth Rendering Competition 2024.

**Ocean Simulation in Unity**

- Implemented Stockham GPU FFT to simulate ocean waves in Unity with 650+ FPS in 4K with RTX 4090.

**Minirenderer, 3D rasterization renderer** *GithubLink*

- Implemented a rasterization render pipeline in C++ for a hands on experience of the rasterization graphic pipeline for game engines, including features like shader supporting, bounding box acceleration.

## Skills

**Languages and Engineering Tools:** C#, C++, Python, JavaScript, GLSL, HLSL; Compute Shader, Render Doc, CMake.
**Technologies:** Unity, Unreal Engine, Blender, Rhino, Maya, Grasshopper, Adobe Creative Suite, 3D Max, Substance Designer, Figma, Visual Studio, Git.