THY TRAN

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EDUCATION

University of Pennsylvania, School of Engineering Philadelphia, PA
BSE in Computer Science: Digital Media Design — May 2021

SKILLS

Languages C++ • C# • Java • CUDA • GLSL • HLSL • WebGL • Cg • MaxScript • C • JavaScript • Kotlin • OCaml
IDEs Qt • Visual Studio • Unity • Unreal Engine • Android Studio
Art programs Maya • ZBrush • Substance Painter • 3ds Max • Houdini • Adobe Creative Suite

ENGINEERING COURSES

Fall 2020 courses are labelled with *

GPU Programming *	Introduction to Computer Graphics	Game Design and Development
Computer Vision *	Physically Based Animation	Software Design and Engineering
Advanced Rendering	Computer Animation	Data Structures & Algorithms

EXPERIENCE

Electronic Arts: BioWare, Technical Artist Intern C#, 3ds Max, MaxScript, Houdini — May - Aug 2020
- Implemented a procedure to enhance meshes with vertex colors and replace them in a game
- Improved tools used to generate vertex color for tree meshes
- Communicated with artists to assess needs and provide support

University of Pennsylvania, Research Assistant ITK Snap, Houdini, team of 3 — Jun - Aug 2019
- Built a pipeline to model organs of patients with hiatal hernia from CT scans
- Segmented organs on CT scans and created a 3D simulation of the organs

University of Pennsylvania, Teaching Assistant
- Data Structures and Software Design Java, IntelliJ, Eclipse — Jan - May 2020
- Advanced Rendering C++, Qt, WebGL — Jan - May 2020
- Visualizing the Past Maya — Aug - Dec 2019
- Art, Design and Digital Culture (Head TA) Java, Processing — Aug 2018 - Dec 2020

PROJECTS

Deferred and Forward+ Rendering WebGL, JavaScript — Fall 2020
- Implemented these rendering methods using clusters for efficiency
- Optimized deferred rendering with efficient G-buffers
- Made effects for deferred rendering including toon shading and Blinn-Phong

Monte Carlo Path Tracer CUDA, C++
- **GPU version** — Fall 2020
  - Designed diffuse & reflective materials, depth-of-field, motion blur and stochastic sampled antialiasing
  - Optimized with first-bounce caching, path termination (stream compaction) and material memory contiguity
  - Developed support for .obj mesh loading with bounding volume intersection culling
  - Coded a denoiser based on edge-avoiding A-Trous wavelet transform for fast global illumination filtering
- **CPU version** — Spring 2019
  - Made different materials using BSDFs
  - Wrote multiple importance sampling, global illumination, and photon mapping
  - Constructed thin lens camera, point light, spotlight, implicit surfaces, and constructive solid geometry

Flocking Simulation CUDA, C++ — Fall 2020
- Simulated flocking behaviors of birds or fish based on Reynolds Boids algorithm
- Utilized uniform grid with semi-coherent memory access for optimizations

Haystack Hoarder Unity, C#, team of 3 — Spring 2020
- Developed a 3D online multiplayer competitive game using Photon Unity Networking
- Programmed player movement and interaction, behavior of resources, UI elements and sound effects
- Modeled, textured, rigged, and animated assets in the game

Big Fish, Little Fish Unreal Engine, team of 3 — Spring 2020
- Designed player mechanics, AI for predator and prey, UI, and sound effects for a 3D puzzle game
- Created underwater environment with post processing effects and particle system
- Modeled, textured, rigged, and animated assets in the game