WAYNE WU

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HIGHLIGHTS

- **Focus**: 3D visualization, simulation, procedural graphics, real-time rendering, immersive digital experiences, and systems design
- **Hobbies**: traveling, bartending, cinematography

SKILLS

- **Tools**: Houdini, Blender, Unity, Omniverse, UE5, Vulkan, WebGPU, PyTorch, AWS
- **Languages**: C++, Python, CUDA/Warp, GLSL, VEX, C#, Java, JavaScript, SQL, HTML

PROFESSIONAL EXPERIENCE

Senior Graphics Engineer, Genies Sep 2023 — Present

- Leads a team of technical artists in developing a cloud-based auto-rigging pipeline (AWS, OpenUSD) for processing AI-generated 3D assets (avatars and wearables), enabling interoperability within the runtime avatar framework (SIGGRAPH 2025).
- Integrates 3D software components and pipelines (Python, C++, Houdini, Blender) for geometry processing, procedural rigging, simulation, and synthetic data generation for ML training.

Lecturer (GPU Programming), University of Pennsylvania Sep 2023 — Dec 2023

- Designed and taught coursework for 30 students on advanced GPU algorithms, frameworks, and architecture, covering the latest features in CUDA, Vulkan, and WebGPU.

R&D Engineer (Production), Industrial Light & Magic Jun 2021 — Sep 2021

- Presented Blue Sky Studios' procedural USD workflows at SIGGRAPH 2021 and adapted these concepts to ILM's pipeline, helping define the studio's long-term USD strategy across departments.

Technical Director (Production Technology), Blue Sky Studios Aug 2019 — Jan 2021

- Architected Houdini-based pipeline systems (Python) with PDG integration and simplified pipeline bridges, enabling technical artists to create parallelized setups across 30,000+ show assets.
- Established new FX workflows in USD and Solaris (VEX, Python) for RBD, VDB, and mesh-based effects, including data translation, scene organization, caching, shading, and rendering with RenderMan.

3D Software Developer (Co-op), SideFX Fall 2017 & Summer 2018

- Developed the material-based fracturing toolkit in Houdini with newly designed RBD workflows based on client requirements. Created a facial auto-rigging system (Python, C++) featuring retargetable FACS blend shapes independent of facial topology.

ACADEMIC & PERSONAL PROJECTS

Metadrobe (Digital Fashion), Spring 2023

- Designed and prototyped a digital fashion and virtual try-on system using advanced 3D tools (In3D, Clo3D, Houdini, UE5, Omniverse) informed by 70+ expert interviews.

Wiggly (Authoring Tool), Spring 2022

- Implemented an optimization-based algorithm for animating deformable objects in Houdini (C++), and designed a modular and procedural workflow (Python, VEX) for artists to easily create animations.

Real-time Crowd Simulation, Fall 2021

- Developed the first WebGPU-based interactive crowd simulation using compute shaders (WGSL, JS) and optimized pipelines to support 10,000+ agents in real time.

EDUCATION

University of Pennsylvania, PA, USA
Master of Science in Engineering, **Computer Graphics and Game Technology**, University of Pennsylvania, 2023

- Teaching Assistant for GPU Programming and Architecture, Fall 2022

University of Waterloo, ON, Canada
Bachelor of Applied Science (Honors), **Systems Design Engineering**, 2019

- Graduated with Distinction, 2019 | Engineering Faculty/Staff Upper Year Scholarship, 2018