Zachary Leong

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Education

University of Pennsylvania *Philadelphia, PA*
BSE in Digital Media Design, GPA: 4.0/4.0 *May 2028*
- Relevant Coursework: Intro to Computer Graphics, Intro to Computer Systems, Data Structures and Algorithms, Linear Algebra, Advanced 3D Modeling, Procedural Design Systems, Computer Animation

Relevant Experience

ACM SIGGRAPH Vancouver, BC / Philadelphia, PA
Student Volunteer *August 2025*
- Contributed 25+ hours supporting conference operations, exhibit flow, and attendee assistance

Student Chapter Internal Chair *August 2025 – Present*
- Served on the school chapter board, organizing workshops and social events to engage 30+ members
- Led a 2+ hour masterclass on procedural PBR and stylized shaders for 20+ attendees in Blender

GRASP, Sung Robotics Lab Philadelphia, PA
Research Intern *October 2024 — Present*
- Independent Study: Developed and analyzed GPU-accelerated methods for collision checking of 3D CSC Dubins paths, combining computational geometry with parallel programming
- Designed user-friendly GUI for a 3D editor in Python using PyQTGraph and PyOpenGL for modeling kinematic origami chains in a team of three

Penn Engineering Philadelphia, PA
CIS 1600 Teaching Assistant (Discrete Math) *January 2025 — Present*
- Served as Recitation Head, leading the recitation sub-committee, collaborating with the professor to coordinate content and logistics, and co-lead weekly recitations of 15 students
- Host weekly one-on-one office hours, clarifying complex topics like induction, probability, graph proofs

UPenn Game Research and Development Environment Club (UPGRADE) *Philadelphia, PA*
Game Developer *August 2024 — Present*
- Winner of the Penn UPGRADE Fall '24 and Spring '25 Game Jam, created a game in 24hrs in a team of four
- Worked with a 30+ member team on *Catanks*, a single-player action-adventure game published on Steam

Projects

3D Rasterizer *September 2025 — October 2025*
- Implemented a C++/Qt rasterizer with Lambert shading, distance fog, and anti-aliasing
- Optimized performance using multithreading, achieving 2× faster rendering speeds

Origami Folding Simulation in Houdini *May 2025 — August 2025*
- Explored origami simulations in Houdini's Vellum by computing stretch and bend constraints with VEX
- Developed UV-based morphing for curated meshes with differing topology, enabling paper-like folding

Building Generator Tool in Houdini *December 2024 — February 2025*
- Built a modular HDA system for customizable building generation, abstracting complexity while supporting curve-based input and multiple roof styles
- Developed Python viewer states to enable intuitive, mouse-driven module placement in the viewport

Additional Projects
- Spring 2025 Demo Reel, Complex Origami Showcase

Technical Skills

Languages: C++, Python, Java, HTML, CSS, JavaScript, C#, OCaml, GLSL
Platforms and tools: Houdini, Blender, Unity, Unreal Engine, Plasticity, Substance Designer, DaVinci Resolve, Photoshop, Lightroom, Premiere Pro, Illustrator, Matplotlib, Flutter, command line, Git, OpenGL