# Zachary Leong

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## Technical Skills

**Languages:** Python (USACO Silver), Java, HTML, CSS, JavaScript, C#, Arduino, LaTeX, OCaml
**Platforms and tools**: Houdini, Blender, Unity, Unreal Engine, Plasticity, Substance Designer, Photoshop, Lightroom, Premiere Pro, Illustrator, Matplotlib, NodeJS, Flutter, command line, Git

## Education

**University of Pennsylvania | School of Engineering & Applied Science** *Philadelphia, PA*
*Bachelor of Science in Engineering, Major in Digital Media Design* *May 2028*

- ➜ Relevant Coursework: Data Structures and Algorithms, Introduction to Computer Systems, Mathematical Foundations of Computer Science, Procedural Design Systems for Virtual Environments

**Lynbrook High School** *Cupertino, CA*

- ➜ GPA: 4.0/4.0, Valedictorian *June 2024*

## Relevant Experience

**GRASP Laboratory** Philadelphia, PA
*Robot Design Research Intern* *October 2024 — Present*

- ➜ Designed a user-friendly GUI for a 3D editor in Python using PyQTGraph and PyOpenGL for creating kinematic chains from tubular origami in a team of two
- ➜ Supervised by PhD student Daniel Feshbach and Dr. Cynthia Sung in the Sung Robotics Lab

**UPenn Game Research and Development Environment Club (UPGRADE)** *Philadelphia, PA*
*Game Developer* *August 2024 — Present*

- ➜ Implemented procedural terrain generation techniques, utilizing chunking and threading, which improved rendering times by 30%, ensuring seamless gameplay experiences in a complex environment
- ➜ Pioneered optimal auto-rotation WASD tank movement for club-wide 3D game project
- ➜ Designed delayed camera-follow script utilizing exponential interpolation for smoother player tracking

**Research in Science & Engineering (RISE) program** *Boston, MA*
*Trainee, Research Intern* *June 2023 — July 2023*

- ➜ Analyzed neural behavior by modeling a 32-neuron network using Python's NEURON library
- ➜ Worked in a team of four to research the Dynamics of Nystagmus in an Oculomotor Neural Network Model

**Gray Area Creative Code Immersive** *San Francisco, CA*
*Creative Designer* *April 2021 — June 2021*

- ➜ Collaborated with post-graduates to create interactive art from HTML, CSS, p5.js, Matter.js, Three.js
- ➜ Crafted an interactive, projectile-based music synthesizer, showcased at group SF event

## Projects

**Procedurally Generated Guitar Animations From MIDI** *March 2024 — April 2024*
*Creator, Technical Animator*

- ➜ Engineered procedural string rig in Blender to replicate realistic string movement
- ➜ Developed custom tool using BPY library to automate keyframe oscillations with integrated fall-off functions
- ➜ Applied CAD and NURBS modeling techniques and rendered a high-quality demo animation

**Tetriminouno** *January 2024 — February 2024*
*Creator, Game Developer*

- ➜ Developed Tetris mechanics, implemented raycasting for collision detection, created seven unique levels

**Additional Projects**

- ➜ Procedural 3D Stop Motion Plant Animation, 3D Modeling Showcase, Complex Origami Showcase