

# Li-Wen Lin

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## EXPERIENCES

**SING Lab | Student Researcher** *Supervised by Prof. Michael Neff* CA, USA | June 2023-Present

- Working with researchers to create automated Unity avatars that synchronize limb movements with audio cues.
- Developing a pipeline that converts hand tracking recorded with Oculus headset and motion captures into BVH file.

**CGV Lab | Student Researcher** *Supervised by Prof. Hung-Kuo Chu* Hsinchu, Taiwan | Sep. 2020-June 2021

- Implemented a 3D model placement on real-world footage program using image segmentation and gradient descent.
- Communicated with industrial collaborators and supervisor on weekly basis about current project issues, resolutions, and system performance.
- Automated project pipeline and accelerated testing time by 20% via Shell script.

**National Tsing Hua University | Teaching Assistant** Hsinchu, Taiwan | Sep. 2020-Jan. 2021

- Resolved 40+ students' questions in "Computer Graphics and Application" course, increasing overall scores by 20%.
- Lectured topics on GLUT, scene rendering, Blinn Phong Lighting, and fragment shaders in OpenGL.
- Created collaborative grading spreadsheet that incorporated multiple grading metrics and reduced 50% grading time.

**BioPro Scientific | Firmware Development Intern** Hsinchu, Taiwan | July 2019-Sep. 2019

- Designed functions that convert bit signal of voltages to readable data, enabling users to see measurement results.
- Collaborated with developers via Git; refactored legacy code and reduced 30% size of source code.

## EDUCATION

**University of California, Davis** CA, USA | Sep. 2021-Dec. 2023 (Expected)

*MS in Computer Science*

GPA: 3.9/4.0

Relevant Courses: Character Animation, Geometric Modeling, Computational Design, Applied Linear Algebra

**National Tsing Hua University**

Hsinchu, Taiwan | Sep. 2016-June 2021

*BS in Computer Science, minor in Foreign Language and Literature*

Senior GPA: 3.66/4.3

Relevant Courses: Programming, Computer Graphics, Algorithm, Data Structure, Operating System, Multimedia

## SKILLS

**Languages and Techniques** C/C++, C#, GLSL, JavaScript, Python, Reinforcement learning, Machine Learning

**Libraries and Tools** OpenGL, WebGL, Eigen, OpenCV, PyQt, PyTorch, Git

**Software** Visual Studio, Unity, Blender, Maya, Cinema 4D, Adobe After Effects

## PROJECTS

**Quadruped Walking via Deep Reinforcement Learning in Unity** June 2023

- Set up compound colliders and joints' DOF on a rigged model and registered them into action space for training.
- Designed reward functions and trained a cat model to move forward while balancing on four limbs.

**Tetris on Self-Designed RISC-V Game Console** Dec. 2022

- Developed graphics API for drawing/moving sprites; recreated fully functional Tetris in C++ with the API.
- Controlled game flow by a state machine, eliminated program crashes and optimized response time by 90%.

**3D Truss Optimization** May 2022

- Derived and implemented displacement-based compliance minimization algorithm; solved equilibrium using sparse Cholesky factorization and was able to generate self-supporting cantilever that was visualized using OpenGL.

**Volumetric Data Visualization Web-App** Jan. 2022

- Implemented ray-casting in fragment shader with interactive opacity transfer function using WebGL and JavaScript.

**Treasure-Hunt Game in OpenGL** Jan. 2020

- Generated terrain using height map; implemented normal mapping, differential rendering for realistic game scene.
- Incorporated collision detection, particle system and fire simulation in object orientation manner.

## ACTIVITIES

**Meichu Game Preparation Committee | Chairperson and Publicity Manager** July 2019-May 2020

- Led 30 members to hold the official sports event between NTHU and NCTU and attracted 5000+ audiences.

**ANUT 3D Animation Studio | President** July 2017-June 2018

- Created storyboard and composited scenes that were modeled and rendered with Cinemema4D as final compositor.
- Coordinated production schedule among a four-member team and publicly showcased our [animation](#).

**Summer Universiade 2017 | English Translation Volunteer** July 2017

- Provided assistance for international athletes regarding stadium information and Mandarin translation.