

# Li-Wen Lin

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## EXPERIENCES

- SING Lab | Student Researcher** | *Supervised by Prof. Michael Neff* June 2023-Present
- Works with Ph.D. students to generate BVH file of a character's upper body from hand tracking data recorded with Oculus headset and motion capture footages for VR replay in Unity.
- CGV Lab | Student Researcher** | *Supervised by Prof. Hung-Kuo Chu* 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 coordinated with supervisor on weekly basis about current project stages, detailing issues, resolutions, and system performance.
  - Automated project pipeline and accelerated testing time by 20% via Shell script.
- National Tsing Hua University | Teaching Assistant** Sep. 2020-Jan. 2021
- Resolved 40+ students' questions in "Computer Graphics and Application" course, increasing overall scores by 20%.
  - Lectured on GLUT, scene rendering, Blinn Phong Lighting, and fragment shaders topics in OpenGL.
  - Created collaborative grading spreadsheet for the teaching group that incorporated multiple grading metrics and reduced time of grading by more than 50%.
- BioPro Scientific | Firmware Development Intern** 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, USA** Sep. 2021-Dec. 2023 (Expected)
- MS in Computer Science* GPA: 3.0/4.0
- Relevant Courses: Character Animation, Geometric Modeling, Computational Design for Digital Fabrication, Applied Linear Algebra, Advanced Visualization
- National Tsing Hua University, 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

<b>Programming</b>	C/C++, C#, GLSL, JavaScript, Python, Machine learning, Reinforcement learning
<b>Libraries and Tools</b>	OpenGL, WebGL, Eigen, OpenCV, PyQt, PyTorch, Git
<b>Software</b>	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 our own API.
  - Controlled game flow by a state machine, eliminated program crashes and increased game play fluency 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 OOP manner to be invoked during game play.

## ACTIVITIES

- Meichu Game Preparation Committee | Chairperson and Publicity Manager** July 2019-May 2020
- Lead 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 rendered with Cinemema4D together as final compositor.
  - Coordinated production schedule among a four-man team and met the deadline to publicly showcase our [animation](#).
- Summer Universiade 2017 | English Translator Volunteer** July 2017