Yuhan Wu

CONTACT

yoharol@outlook.com

(+81) 090-9266-1417

Website: yoharol.github.io/pages/myself/

PERSONAL SUMMARY

I was once a game designer and creator working in the game industry, and now a PhD student at the University of Tokyo. Currently I am a visiting researcher at Carnegie Mellon University, working on interactive and differentiable deformable simulation.

- Specializing in interactive and real-time physics simulation for deformable bodies and character animation.
- Experienced in numerical methods, high-performance simulation systems, with strong hands-on experience in C++, CUDA, PyTorch, NVIDIA Warp.
- Actively working on bridging high-fidelity physics simulation with real-time, interactive applications, including character animation, physics-integrated creation pipelines, and differentiable physics.

PUBLICATION

FloodDiffusion: Tailored Diffusion Forcing for Streaming Motion Generation, *(Second author)*

- Contributed to the implementation of a diffusion-forcing framework for continuous human motion generation, enabling streaming and long-horizon motion synthesis.
- Designed and implemented physics-based loss functions for post-processing and motion refinement, improving physical plausibility of generated motions.
- Built data processing and mining pipelines for large-scale human motion datasets.

BlendSim: Simulation on Parametric Blendshapes using Spacetime Projective Dynamics, *Computer Graphics Forum (Eurographics 2025)*

Publishment: https://onlinelibrary.wiley.com/doi/10.1111/cgf.70068

- Proposed a physics-based interactive design framework for parametric blendshape animation, enabling physically plausible deformation in keyframe-driven workflows.
- Implemented the system in C++ with OpenMP, achieving efficient parallel computation for real-time interaction.
- Enabled two-way coupling between industry standard blendshape animation (OpenUSD, glTF) and physically simulated deformation.

Two-way Coupling of Skinning Transformations and Position-based Dynamics, *The 22nd Annual Symposium on Computer Animation*, 2023

Publishment: https://dl.acm.org/doi/10.1145/3606930

- Developed an interactive two-way coupled framework between linear blend skinning (LBS) and position-based dynamics (PBD) for deformable character animation.
- Enabled real time physically-based secondary motion driven by rigged character animation, without breaking animator control.
- Integrated the system into Spine 2D animation as part of a production Java framework, delivering physics-based animation features to real tools.

SKILL

Core Expertise

Physics-based simulation, deformable models, numerical optimization, implicit time integration, differentiable simulation and inverse problems

Programming

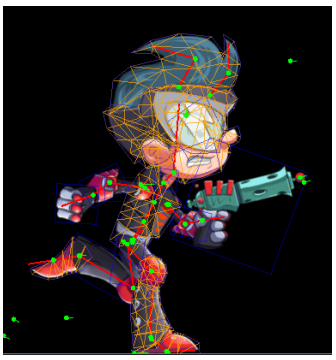
C++, Python, PyTorch, NVIDIA Warp, OpenMP, CUDA, Java, C#, JavaScript

Systems & Tools

Unity, Maya, Blender, OpenUSD

EXPERIENCE

Shanda AI Research Tokyo. — Internship (Jul 2025 -)



An AI research lab focuses on generative digital humans.

Work on generative human motion.

Manage human motion data and humanoid simulation assets.

OLM, Inc. — Internship (Jul 2024 - Sep 2024)

A Japanese animation and film studio.

Collaborating with industrial animation researchers.

Implemented a Maya plugin for cage-based deformers.

Code: github repository

Ecosteric Software — Project Research (Sep 2023 - Oct 2023)

A well-known animation design software.

Implementing my research about real-time simulation of rigged character in the java framework of Spine-runtime.

Code: github repository

RIISE, The University of Tokyo — Research Assistant (Oct 2021 - Mar 2022)

Url: www.riise.u-tokyo.ac.jp/en

Developing design tools for yarn level fabrication.

Betta Games, China — Technical Designer (Jul 2020 - Apr 2021)

Url: https://en.bettagames.com/

Designed gameplay and implemented real-time, data-driven physics simulations for sports trajectories (tennis, golf, frisbee) in Unity, optimized for mobile platforms.

EDUCATION

The University of Tokyo — Department of Creative Informatics, PhD.

04/01/2024 - 03/31/2027

Doctoral of Computer Science - Creative Informatics
Superviser: Nobuyuki Umetani
Research topic: Physics based animation and simulation

Carnegie Mellon University — Department of Computer Science,Visiting PhD student.

11/13/2025 - 04/13/2026

Doctoral of Computer Science - Creative Informatics
Superviser: Minchen Li
Research topic: Physics based simulation and animation

The University of Tokyo — Department of Creative Informatics, M.C.S.

04/01/2022 - 03/31/2024

Master of Computer Science - Creative Informatics
Research topic: Interactive animation design tool using physics

Tsinghua University — Department of Physics, B.S.

08/01/2015 - 06/30/2020

Bachelor of Science - Mathematics and Physics
Research topic: Physics in digital game programming

Tsinghua University — Academy of Arts & Design, B.A.

08/01/2017 - 06/30/2020

Bachelor of Arts - Digital Media Art (For Second Bachelor Degree)
Research topic: Visual guidance in 3D puzzle design

Funding and AWARD

Adopting Sustainable Partnerships for Innovative Research Ecosystem (ASPIRE, 2026-2027)

Spring GX Student Scholarship (2024-2027, The University of Tokyo)

Second Class Freshman Scholarships (2016-2020, Tsinghua University)