

Yusen Feng

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Profile

I am Yusen Feng, a second year Ph.D student from Center on Frontiers of Computing Studies (CFCS), Peking University, advised by [Prof. Libin Liu](#). Before that, I was a student major in physics, from Qian Xuesen Honors College in Xi'an Jiaotong University. I have a broad range of interests, with a particular focus on generation of motion sequence through deep learning, the control of physics-based character animation, biologically-plausible control design, and muscle actuator simulations. I also personally enjoy exploring physical phenomena related to fluids and soft bodies, as well as the possibility related to the connection between neural network and simulation.

Areas of Expertise

Musculoskeletal Simulator Building - Model Free and Model Based Reinforcement Learning - Deep Motion Synthesis and Generation - Biologically Plausible Control Design - Data Analysis

Education

PhD in Computer Science [Peking University](#) **Beijing, China** 2022-2027 (Expected)

Relevant Courses: Computer Vision, Natural Language Processing, Reinforcement Learning, Robotics Vision, & Computer Graphics.

BSc in Physics [Xi'an Jiaotong University](#) **Xi'an, China** 2018-2022

Relevant Courses: Analytical Mechanics, Mathematical Analysis, Advanced Algebra, Group Theory, Numerical Computation & Fundamentals of Programming.

Publication

- MuscleVAE: Model-Based Controllers of Muscle-Actuated Characters, **Yusen Feng**, Xiyan Xu, Libin Liu, SIGGRAPH Asia 2023 Conference Papers. 2023.
- Unsupervised hyperspectral image change detection via deep learning self-generated credible labels Qixia Li, Hang Gong, Haishan Dai, Chunlai Li, Zhiping He, Wenjing Wang, **Yusen Feng**, Feng Han, Abudusalamu Tuniyazi, Haoyang Li, Tingkui Mu, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing 14 (2021): 9012-9024.
- Hyperspectral image change detection using two-branch Unet network with feature fusion, Qixia Li, Tingkui Mu, **Yusen Feng**, Hang Gong, Feng Han, Abudusalamu Tuniyazi, Haoyang Li, Wenjing Wang, Chunlai Li, Zhiping He, Haishan Dai, Fourth International Conference on Photonics and Optical Engineering. Vol. 11761. 2021.

Skills

- **Data Visualization:** Muscle rendering using OpenGL & Gaussian Splatting for volumetric muscle
- **Deep Reinforcement Learning:** Proximal Policy Optimization (PPO) of rigid body humanoid and muscle actuated humanoid, model based learning control for rigid body humanoid and muscle actuated humanoid & deep generation of motion sequences
- **Physics Simulation and Simulator:** High efficiency parallel simulator design, GPU muscle simulation acceleration
- **Coding Language:** C/C++, Python, PyTorch, CUDA & C Sharp
- **Software:** Unity, Unreal Engine, Blender, Zeno, Motion Builder, Maya & basic Adobe and Microsoft series
- **Soft Skills:** Presentation, Planning, Paper Writing, Creative Problem-Solving, Machinery Operation, Teamwork, Adaptability

Research Experience

- Exoplanet Search, Astronomy (Jun. 2019 - Mar. 2020) - XJTU, under the supervision of Zhaoyu Zuo and Taozhi Yang
- Hyperspectral Image Change Detection, Applied Optics (Apr. 2020 - Jun. 2021) - XJTU, under the supervision of Tingkui Mu
- Summer Research Program of high energy particle collision simulation, High Energy Physics (Jun. 2020 - Aug. 2022) - Notre Dame University, under the supervision of Kevin Lannon and Michael Hildreth
- Rendering (Jun. 2021 - Aug. 2021) - XJTU and Tsinghua University, under the supervision of Yijun Yang and Li Chen
- Physics Based Character Animation (Aug. 2021 - Now) - Peking University, under the supervision of Libin Liu
- Internship of Muscle Robotics , (Jun. 2024 (Expected) -) - working with [Clone Incorporated](#)

Teaching

- TA in Introduction to Artificial Intelligence, 2024 Spring, PKU course
- TA in Programming in Artificial Intelligence, 2023 Fall, PKU course
- TA in Motion Control & Character Animation, 2023 Spring, PKU course
- TA in Introduction to Artificial Intelligence, 2023 Spring, PKU course
- TA in [GAMES105, 2022 Fall](#), public course
- TA in Introduction to Computer Science, 2022 Fall, PKU course

Awards

- **First Prize in School:** XJTU, 2018-2019
- **Second Prize of Zhufeng Scholarship:** XJTU, 2019
- **China Undergraduate Physicists' Tournament (CUPT) Northwest Division Grand Prize:** XJTU, 2019
- **Provincial Second Prize in National Undergraduate Mathematical Modeling:** XJTU, 2019
- **National Scholarship:** XJTU, 2019-2020
- **Second Prize of Zhufeng Scholarship:** XJTU, 2020
- **Third Prize in School:** XJTU, 2020-2021
- **Second Prize of Zhufeng Scholarship:** XJTU, 2021
- **Tengfei Cup Innovation Competition, first prize in school:** XJTU, 2021
- **Outstanding graduate of Qian Xuesen class:** XJTU, 2022

Languages

- **English** [Fluent]
- **Chinese** [Native]
- **Japanese** [Basic] - Learning