



Nurshat Menglik

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Gender: Male **Date of birth:** 25/12/1998

ABOUT ME

My research interests are about computer graphics and computational physics, more specifically, including VR/AR, parallel computing, physics based animation and simulation. I got lots of research experiences in such areas from some graphic labs. Currently, my research is focusing on physics based simulation.

EDUCATION AND TRAINING

[01/09/2017 – Current] **Undergraduate**

Peking University

Address: Beijing, China

Main subject / occupational skills covered:
B.S. in Computer Science

- In my first two years, I have learned a lot of basic math knowledge and computer skills, such as coding with C/C++ and basic knowledge about computer hardware.
- At the end of the second year, I started to gain interest in Computer Graphics, and took on some CG courses. Here I learnt OpenGL as well as developing other areas of knowledge.
- At the recent two years, I spent most of my time on doing research in Labs with some cool peoples, gained good research experiences and developed strong research abilities.

PROJECT EXPERIENCE

Game designing(Unity, C++, VR, Godot)

Lots of interesting simple games in Unity, including VR games;

3D modeling(Blender)

Kinds of simple 3D objects;

Physics based simulation and animation(C++, CUDA, OpenGL, Eigen)

- SPH: fluid and surface tension;
- FEM: 2D and 3D elastic bodies(both explicit and impicit);
- Topolgy Handling;

RESEARCH EXPERIENCE

[01/10/2019 – 01/02/2020] **VR**

The main works are reading papers, studying human visual behaviors and assisting my professor to design eye gaze movement behaviors of VR agent, which usually are useful in VR games or VR education systems.

[01/06/2020 – 01/01/2021] **Topology handling in Fracture Simulation**

This was my first step into the Physics Simulation world. I joined in the [[Physika](#)] team at my university. My main works were learning basic knowledges about this area and physics engine, more specifically, I assisted a PhD student in the Lab to solve some research problems, like topology changing in fracture simulation. This was the very essential part of my research experiences, because I learned a lot about simulation and found that this was the thing that I really interested in.

[01/01/2021 – 01/11/2021] **Real-time surface tension simulation with SPH on GPU**

As an intern, I've been working with Prof. [Xiaowei He](#) at the Institute of Software, Chinese Academy of Sciences. My research is mainly about simulating surface tension of free surface fluids, we proposed a new method to handle interaction between fluid and solid boundary, since the boundary is based on mesh instead of using any extra particles in solid, like ghost particles, our method is more efficient and allow us to real time simulate fluids, such as teardrop and water droplets. This work was completed and paper was submitted on IEEE VR 2022 Conference, which is still under review, the video of demonstration is available on my [webpage](#). Our group's GitHub link is [[Peridyno](#)].

[01/08/2021 – Current] **FEM and efficient elasticity solver**

This is an ongoing remote research, I am working on research with prof. [Joseph M. Teran](#) from UC Davis. I've been studying Lagrangian FEM and elasticity.

PUBLICATIONS

Semi-Analytical Surface Tension Model for Free Surface Flows

N. Menglik, H. Yao, Y. Zheng, J. Shi, Y. Qiao, X. He

IEEE VR 2022 Conference(in review)

[[Video](#)]

SKILLS

Programming and Tools

C/C++, OpenGL, Cuda

Unity, Blender, Houdini, Git, Eigen

Languages

Uyghur(*proficient*), Chinese(*proficient*), English(*fluent*)

Hobbies

Body building, Football, Painting, Cooking, Reading