

Yu Zhang 张宇

✉ yucrazing@mail.bnu.edu.cn | 🏠 yucrazing.github.io/resume | 📄 github.com/YuCrazing

Education

Beijing Normal University

M.E. IN COMPUTER SCIENCE AND APPLICATION

2017 - 2020

- Advisor: Zhongke Wu

Beijing Normal University

B.S. IN COMPUTER SCIENCE AND TECHNOLOGY

2013 - 2017

Work Experience

(* The listed projects are only a selected part of all the projects during each period)

2024.10-
Now **Research Assistant** University of Utah, Salt Lake City

- **Cloth Simulation** (Role: Project participant)
 - Participate in cloth simulation-related projects in Prof. Yin Yang's lab.

2021-2024 **Graphics R&D Engineer** Taichi Graphics, Beijing

- **Meshy 3D AIGC Project** (Role: Project participant)
 - Work details can not be displayed here because of confidentiality agreement.
- **Soft2D Physics Engine** (Role: Project owner)
 - A 2D MPM multi-material continuum physics engine for real-time applications.
 - See Soft2D website (docs.soft2d.tech) for more details.
- **High-Performance PBD Engine** (Role: Project owner)
 - A position-based dynamics physics engine similar to Houdini Vellum.
 - Supports a series of materials: rigid body, soft body, fluid, cloth, granular material, etc.
 - Achieves a 60 FPS's 240k particles fluid simulation, which can also be extended to a large-scale (10 million particles) scene.
 - Implements algorithms like dual contouring for fluid surface construction and the CCD (Continuous collision detection) algorithm for collision detection.

2020-2021 **Game Engine Engineer** Tencent Games, Shenzhen

- **Unreal Engine SPH Plugin** (Role: Project owner)
 - Simulates real-time SPH (smoothed-particle hydrodynamics) linear elasticity deformable objects and fluids in the UE (Unreal Engine) game engine.
 - We are the first people to implement the 3x3 SVD algorithm (Aleka McAdams's version) in HLSL (high-level shader language).
- **Unity Stable Fluids Plugin** (Role: Project owner)
 - Achieves a real-time stable fluids simulation in the Unity game engine.
 - The plugin is optimized specifically for mobile devices and is able to run at 2ms per frame performance on a mid-range mobile phone.

2019.07-09 **Game Engine Engineer (Intern)** NetEase Games, Guangzhou

- **Real-Time Fluid Simulation in Games** (Advisor: Xiaosheng Li)
 - Achieves two popular Lagrangian methods - SPH (Smooth Particles Hydrodynamics) and PBF (Position Based Fluids), on both PC and mobile platforms.
 - Implements two fluid surface rendering methods: Marching Cubes and SSFR (Screen Space Fluid Rendering).

- The project is implemented in Unity compute shader and runs on GPU.

Publications

Dynamic Ball B-Spline Curves. CGI 2023

Ciyang Zhou, **Yu Zhang**, Zhoneke Wu, Xingce Wang

Dynamic Disk B-Spline Curves. CASA 2020 & CAVW

Yu Zhang, Zhoneke Wu, Xingce Wang

Awards & Honors

- 2017 **The 2017 ACM-ICPC, Gold Medal**, Xi'an. (Top 10% teams)
- 2016 **China Collegiate Programming Contest, Gold Medal**, Hefei. (Top 10% teams)
The 2016 ACM-ICPC, Gold Medal, Qingdao. (Top 10% teams)
- 2015 **The National Scholarship**, Beijing Normal University. (5 winners among 500+ participants)
Undergraduate National Innovation Project, Beijing Normal University. (Grant ¥20,000)
China Collegiate Programming Contest, Gold Medal, Nanyang. (Top 10% teams)
- 2014 **The First Prize Scholarship**, Beijing Normal University. (Selected 4 out of 40+)
- 2013 **The First Prize Scholarship**, Beijing Normal University. (Selected 4 out of 40+)

Language & Skills

TOEFL **97** (Reading 29, Listening 26, Speaking 19, Writing 23)

SKILLS C++, Python, Unreal/Unity Engine, Blender, Houdini, Mathematica, etc.