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)

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

- **Soft2D Physics Engine** (Role: Project owner)
  - A 2D MPM multi-material continuum physics engine for real-time applications.
  - See Soft2D website (www.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 **93** (Reading 29, Listening 24, Speaking 17, Writing 23)
SKILLS C++, Python, Unreal/Unity Engine, Blender, Houdini, Mathematica, etc.