Ang ZHAO

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heskey0.github.io

EDUCATION

Communication University of China   Sep 2020 - Jun 2024

Digital Media Technology, Bachelor ,School Of Animation And Digital Arts

Xiamen University   Sep 2024 - Jun 2027

Software Engineering, Master , School of Film

INTERNSHIP EXPERIENCE

Tencent - IEG   May 2024 - Jun 2024

Technical Artist Eco-Development Department/TA Group   Shenzhen

- Recreated the deep learning volume rendering pipeline MRPNN (siggraph 2023) in Unreal as a plugin.

Motphys   Jan 2024 - Apr 2024

Engine Development Engineer   Beijing

- Independently developed the Projective Dynamics section of a soft body simulation plugin in Unity from scratch, and shared detailed derivation processes of papers within the team.
  - Utilized Jacobi iteration method to solve strain and volume constraint problems in tetrahedra during local step, with Chebyshev acceleration for algorithm parallelization.
  - Precomputed the system matrix for PD and used Cholesky decomposition for faster execution of the global step.

Black Mirror Technology Co., Ltd.   May 2022 - Oct 2022

Graphics Algorithm Engineer

- Implemented Eulerian fluid algorithm in Unity, utilized shaders for Jacobi iteration solving of N-S equations on GPU, corrected vorticity to counter numerical viscosity.
- Implemented APIC fluid algorithm in Python:
  - Enhanced N-S equation discretization accuracy with finite differencing on staggered grids, applying V-Cycle geometric Multigrid for preconditioning to correct numerical errors at various granularities for improved convergence speed.
  - Split the entire simulation process into particles and grids for convection and pressure projection handling separately, coupling them using bilinear interpolation and B-spline kernel functions.
- Implemented PBD soft body simulation algorithm in Python, independently solving volume constraints for tetrahedra and integrating them using Jacobi iteration for GPU acceleration to achieve real-time performance. Applied compact hashing inspired by SPH algorithm for neighbor search to handle cloth self-collision.

Tencent - CSIG   Jan 2022 - Apr 2024

Algorithm Intern, Intelligent Platform Product Department   Beijing

- Involved in building the SDK for the CSIG in-car interactive digital human module from scratch. Designed NLP interaction interfaces, TTS audio interaction interfaces, and voice lip synchronization logic for the digital human module.
- Independently wrote shader code in URP pipeline to implement Disney principled BRDF, IBL, SH, NPR, normal smooth edges, depth offset edge lighting.
- Resolved issues related to embedding Unity project engineering components into Android apps, such as bone, texture, and background transparency during platform migration.
- Addressed code bloat problems, decoupling UI layers, resource loading and unloading, object pools, etc.

SKILL SET

- Program Language: C# (master), C++ (master), python (master)
- Software Skills: Unity Engine (master), Unreal Engine (fluent)