Particle Finder and Situational Surface Calculator classes reduce method duplication. We used to have the same functions in different classes. These middle classes are advantageous to reduce duplication compared to the previous design.

Nvidia Flex is an external source and it initializes particle-based fluid simulation.

Handler transmits data to relevant operant classes. Data is hashed by the use of spatial hashing.

The spatial hash algorithm helps us to reach particle positions easier from the group into cells. We prevent linear search and optimize performance.

Surface particles are separated into cases to calculate variables. In each case, variables change herewith results depend on the specific factors of the surface particles.

Surface particles are determined based on color field quantity.

Group neighbor particles for each vertex.

Returns the constant value for marching cubes vertices are outside of the fluid.

Returns the constant value for marching cubes vertices are outside of the fluid.

Visualization made by renderer via the marching cubes algorithm.

Nvidia Flex

Handler

HashSystem

Particle Finder

Situational Surface Calculator

Surface Recognizer

Marching Cubes Scalar Calculator

Marching Cubes

Marching

GetBounds()

GetParticles()

GetIndices()

SetData()

FindId()

Return ParticleID

AddParticlesToHashModel()

Return HashModel

SendHashModel()

SendHashModelAndParticles()

FindNeighbourParticles()

Return Neigbour Particles

SendNeighbourParticles()

FindWeight()

ReturnWeight

FindSurfaceParticles()

Return Surface Particles

SendSurfaceParticles()

FindSurfaceVertices()

SendSurfaceVertices()

FindNeighbourParticlesofVertices()

Return Neigbour Particles

Send Surface VerticesAndNeighbours()

FindWeight()

ReturnWeight

FindMarchingConstants()

SendConstants()

MarkMarchingVertices()

SendMarchingVertices()

Visualize()